ATTACHMENT 2

WASTE ANALYSIS PLAN

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WASTE ANALYSIS PLAN

1.0 Introduction:

1.1 Overview:

1.1.1 Objectives:

The objective of the waste analysis plan (WAP) is to describe the procedures that will be undertaken to obtain sufficient information about waste streams to operate the facility in accordance with the permits. More specifically, the waste analysis plan ensures that wastes accepted are appropriate for management at the facility and that the wastes that arrive at the facility are the same as those evaluated in the profiling process.

This plan also anticipates that wastes will be generated on-site and will ultimately be accepted for storage and/or treatment at this facility. These wastes will be subject to the same waste analysis procedures as wastes accepted from off-site sources except for incoming load procedures which are not required for site generated wastes.

In accordance with R315-8-2.4, 40 CFR 264.13(b), (c), 270.14(b) (3), and 40 CFR 761, this waste analysis plan addresses the RCRA regulated and TSCA regulated PCB wastes that will be transferred, stored, and/or treated at the facility. This facility operates as both a transfer/storage and a treatment facility.

1.1.2 **Purpose:**

The purpose of this waste analysis plan (WAP) is to establish necessary sampling methodologies, analytical techniques, and overall procedures for characterization, acceptance, storage and treatment of hazardous wastes accepted or generated at the facility.

This waste analysis plan establishes the following:

- The parameters for which each hazardous waste will be analyzed and the rationale for their selections.
- The test methods which will be used to test for these parameters.
- The sampling methods which will be used to obtain a representative sample of the waste to be analyzed.
- The frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date.

The WAP is intended to be the primary reference document for all waste analysis performed in conjunction with operation (and closure) of LES-Clive. The WAP addresses the following topics:

- **o** waste characterization, analytical parameters and rationale (Section 2.0),
- **o** test methods (Section 3.0),
- **o** waste sampling (Section 4.0),
- **o** pre-acceptance procedures (Section 2.0),

- **o** incoming load procedures (Section 2.0),
- **o** pre-burn procedures (Section 7.0),
- **o** management of treatment residues (Section 9.0), and
- **o** requirements for PCBs and PCB Items (Section 10.0)
- **o** quality assurance and quality control (Appendix 1).

A Quality Assurance Plan (QAP) is included as Appendix 1 of this waste analysis plan. The QAP describes the methods and procedures that laboratory personnel use to assure integrity of laboratory data. The QAP contains the specific procedures and practices used within the laboratory in order to ensure that the resulting data are technically sound, statistically valid, and properly documented.

This waste analysis plan is supported by Standard Operating Procedures (SOP) Volumes 1 and 2. The SOPs are used by laboratory personnel as detailed instructions for performing the necessary procedures. The SOPs are incorporated by reference as part of this waste analysis plan as stand alone documents. They are required for Utah certification of the laboratory and will be followed for compliance with the permit. These procedures may be updated as appropriate without prior UDSHW approval.

1.2 Definitions:

The following terms, applied within the WAP, will have the following meaning:

- **o** Accept, Accepted or Acceptance: -- When it has determined that a waste shipment received at the facility conforms to the approved profile (or all discrepancies have been resolved).

- **o** Analysis: The term "analysis" means any method by which the value of a particular parameter is determined. These methods may include laboratory procedures specified in this Waste Analysis Plan or may rely on knowledge of the waste or the process generating the waste.

- **o** Approve, Approved, or Approval: This term is used in the context of evaluating a profile. Approval of a waste stream profile occurs after all necessary evaluations and analyses have been made and when the generator is notified as described in Module II.C.

- **o** Bulk Load: The term "Bulk Load" will mean any individual waste shipment transported to the facility which is too large to be managed through the Container Management Building (e.g. an intermodal container, end-dump truck, tanker truck, railcar, etc.).

- Hazardous waste: The definition of "hazardous waste" shall be as provided in 40 CFR 261.3.

- Incoming Load: The term "Incoming Load" refers to a load during the period beginning when a waste shipment arrives at the facility through when a waste shipment is rejected or accepted and placed in a storage or treatment unit.

- Laboratory Manager: The "Laboratory Manager" refers to the individual, or a designee, responsible for implementation of the WAP.

- Non-hazardous waste: "Non-hazardous waste" refers to "solid waste" as defined in 40 CFR 261.2 which is not "hazardous waste" as defined in 40 CFR 261.3. This may include solid waste such as "empty containers" as defined by 40 CFR 261.7, exempt solid and/or hazardous waste as defined by 40 CFR 261.4, medical waste, sludge from publicly owned treatment works, household hazardous waste, garbage, refuse, etc.

- Parameter: The term "parameter" is a specific material property, such as pH, specific gravity, viscosity, etc.

- PCB(s): The term "PCB(s)" refers to PCB(s) or PCB Item(s) as defined in 40 CFR 761. (Specific waste analysis requirements for storage and incineration of PCBs are provided in Section 10).

- Post-burn: The period following treatment of a waste in the incinerator is referred to as "Post-burn"

- Pre-acceptance: The period in which a waste stream's acceptability for storage and treatment at the LES-Clive is evaluated is referred to as "pre-acceptance." This is the same as the Profile Approval Period.

- Pre-burn: The term "Pre-burn" refers to the period between acceptance and introduction of the waste to the incinerator.

- Radioactive: A "Radioactive" material shall be any waste found to have a count rate exceeding background by three (3) times or greater.

- Receive or Received: Means arrival as defined in Module III.E.2.

- Special Handling: "Special Handling" refers to the process of feeding waste accepted at the facility directly into the incinerator, following all precursor requirements of the permit.

- Suitable Laboratory: A "suitable laboratory" is an analytical laboratory which, after review of its wap, meets the minimum quality assurance requirements as specified in the WAP. The laboratory must also provide the QA/QC documentation for the analytical results it provides which must include analytical methods used and be one of the following:

  a) certified by the State of Utah Health Laboratory;

  b) adheres to the EPA Contract Laboratory Procedures; or

  c) has been approved in writing by the Executive Secretary.

- TSCA Waste: Means any mixture of liquid, solid, or sludge that contains PCBs regulated under 40 CFR Part 761.

- Waste Stream: Waste stream means a waste that is, or should be, identified as a line item on the Uniform Hazardous Waste Manifest from the same source of generation and delivered with the same load.

1.3 Identification of Wastes:

1.3.1 Wastes Acceptable for Storage and Treatment:

Materials acceptable for treatment and/or storage at LES-Clive include: solid waste including medical wastes, and other wastes such as household hazardous waste, non-hazardous industrial wastes etc., hazardous waste regulated under the Resource Conservation and Recovery Act (RCRA), the Hazardous and Solid Waste Amendments (HSWA), and Superfund (CERCLA), and PCBs and other wastes regulated under the Toxic Substances Control Act (TSCA). Wastes are accepted in a variety of physical forms, including liquids, compressed gasses, sludges, and solids. These wastes may not arrive in a 100% homogenous form. Modules III and IV of the RCRA permit list the waste codes which may be accepted at LES-Clive for treatment and/or storage. Modules IX(A) & IX(B) list the waste codes acceptable for incineration. The waste codes listed in the LES-Clive HSWA permit may also be stored, treated and incinerated at LES-Clive.

LES-Clive will also temporarily (ten days or less) hold wastes manifested to another facility similarly to that allowed in §263.12. This will be referred to as transfer operations. There are no restrictions on waste codes for transfer operations.

The types of PCB materials accepted for treatment and/or storage and held for transfer operations at the facility are summarized on Table C-1. Definitions of the terms used in the table are given. These wastes are regulated under the Toxic Substances Control Act (TSCA), and may be commingled with RCRA-regulated wastes when treated.

Table C-1 Summary of TSCA Wastes for Incineration			
PCB TYPE [1]	**CLASS**	**TYPICAL PCB CONC. (DRY WT)**	**TREATMENT POINT**
oil	liq	0-90%	kilns, scc
water	liq	0-10%	burner kiln, scc
articles & capacitors	solid	20%	kilns
misc. solids	solid	0-10%	kilns
soils, spill cleanup	solid, sludge	< 50%	kilns

1 oil is a dielectric liquid containing PCB and a chlorinated solvent and is hydrocarbon based; misc. solids means gloves, protective clothing, debris, etc.; soils means dirt, earth, rock.

1.3.2 Waste Prohibited for Storage and Treatment:

Materials which will not be accepted for storage and treatment at LES Clive include the following:

- DOT Forbidden, Class 1, Division 1.1, 1.2, and 1.3 Explosives;
- hazardous waste identified as Water Reactive Subcategory of D003, Reactive Wastes (unless the waste has been treated in accordance with 40 CFR 268) and/or which tests positive using the water reactivity screen unless the positive indication is solely the result of acid/base reaction;
- pyrophoric wastes and materials;
- shock sensitive wastes and materials; and
- radioactive wastes and materials.

2.0 Waste Characterization, Analytical Parameters and Rationale:

The following sections describe the procedures that are followed for approving a waste stream for management at the facility (pre-acceptance), incoming load procedures, and procedures for resolving discrepancies that may occur upon receipt of the waste. Because of differences in packaging, sampling requirements, and management options for the many waste types that will be handled at the facility, different procedures are necessary. Section 2.1 describes the procedures for most waste categories. Section 2.2 through 2.12 describe alternate procedures for wastes with special circumstances that do not fit into the procedures of Section 2.1.

2.1 Routine Wastes:

2.1.1 Profile Approval/Pre-acceptance Process:

Before a waste stream can be approved for storage and/or treatment at the facility, a Waste Profile Sheet and representative sample must be collected. The sample will be analyzed by a suitable laboratory approved for all required parameters in order to generate complete analytical information. Once all the information is compiled it will be reviewed in order to assess the acceptability of the waste stream for management. These profile approval procedures occur prior to giving authorization to ship the waste to the LES Clive facility.

If the situation arises where a load or loads of waste arrive at the facility without being approved through the pre-acceptance procedures described in this section, the waste will not be accepted until the pre-acceptance procedures have been performed and the results of the analyses confirm

that the waste can be accepted. If such wastes arrive at the facility, they will remain in the custody of the transporter while the pre-acceptance evaluation is completed. In the case of loads of drums, drums will be unloaded from the transport vehicle at the Container Management Building in order to obtain samples for analysis of the mandatory pre-acceptance parameters. This situation of waste arriving at the LES Clive facility without an approved profile will be the exception and not routine practice and LES Clive will make every effort to ensure that waste arriving at the facility without an approved profile is minimized.

For each waste stream which is a candidate for storage at the facility, LES Clive requires a completed Waste Profile Sheet and the physical and chemical analyses from Table C-2. For waste streams which will be incinerated, the completed Waste Profile Sheet and the physical and chemical analyses from Tables C-2 and C-3 are required.

Waste Profile Sheets contain information about the generator, physical and chemical characteristics of the waste, process generating the waste, applicable waste codes, applicable DOT codes, and generator certification that the information he/she is providing is accurate. The following list details the minimum information that must be supplied as part of the Waste Profile Sheet:

- Generator Information
  - Name
  - Address
  - Contact Person
  - Phone #

Facility EPA ID#

General Information
- Generating Process
- Common Name of Waste
- Rate of Generation
- DOT Shipping Name
- DOT Hazard Class

Chemical Composition
- List of Chemical Constituents and Concentrations

Physical Description
- Physical Description
- Physical State
- Phases/Layering
- % Liquid
- Odor

Regulatory Information
- Regulated or Licensed Radioactive Waste
- Regulated Medical Waste
- TSCA Regulated PCB Waste
- EPA Waste Codes

Generator Certification
- Certification signed by the generator that the information supplied on the Waste Profile Sheet and any attachments or supplements represent a complete and accurate description of the waste and that the sample supplied is representative of the waste.

Other information may be requested on the Waste Profile Sheet, but if not applicable will be marked accordingly.

Following the review of the Waste Profile Sheet and the physical and chemical analyses of the waste material, the waste stream is evaluated for management at the facility. This evaluation includes reviews of:

- Appropriate documents to ensure that acceptance of the waste material will be in compliance with company policies and all applicable federal, state, and local laws and regulations.
- The capabilities of existing treatment and storage facilities to ensure that the waste material can be satisfactorily managed by LES Clive or an off-site facility.
- The physical and chemical characteristics of the waste material to ensure that the material is compatible with other wastes which are present.
- The waste characterization information and available analytical data to ensure that the waste material does not contain any specific waste codes, compounds, or properties which are prohibited at LES Clive.

All profiles for all waste streams must be approved by the Laboratory Manager or his/her designee and will be so noted on the profile. Following approval of the candidate waste stream, the generator is notified in writing that the Clive facility has the appropriate permits for, and will accept the waste stream in accordance with Module II.C. and 40 CFR §264.12(b) [not required for facility-generated wastes].

At a minimum, the profile evaluation is repeated when a generator notifies the company that the process generating the waste has changed (e.g., when the raw materials to the process have changed), if the facility has reason to suspect that the waste is in non-conformance with profile documentation, and at least annually.

For an annual recertification, a letter will be sent asking the generator to certify that the process has not changed and indicating that a sample of the next load will be taken if the generator certifies that the load is representative of his/her stream. For the annual recertification, the analyses outlined on Tables C-2 and C-3 will be conducted. If the waste stream is only being stored at LES Clive, only the analyses in Table C-2 need be conducted. If the profile is older than twelve months, a sample of the next load received will be collected and analyzed for recertification purposes with the results becoming the profile analysis for subsequent loads.

If the waste is approved for management at the facility, a unique identification number is assigned to the waste stream. This number is used to identify the waste through the subsequent stages of the waste management process.

2.1.2 Load Acceptance and Handling of Discrepancies:

If the waste profile is approved, the waste may be scheduled for shipment to the facility. Upon arrival at the facility, the waste is inspected, sampled, and analyzed prior to it being accepted or commingled with other waste streams. This serves two purposes. First, it compares the waste characteristics of the actual load with those determined in the profile approval process and those listed on the waste manifest. Second, it confirms the characteristics that would indicate the proper disposition of the waste for storage and/or treatment. Facility-generated wastes are not subject to the incoming load procedures described in this Section.

Incoming load samples taken at LES Aragonite and LES Grassy Mountain and their analysis may be used in lieu of taking samples of the waste when it arrives at the LES Clive facility. The waste stream must still have an approved profile issued by LES Clive. The samples and the analysis (if it is to be used) must be shipped to LES Clive with the waste. The facility taking the samples must follow the same sampling methods as prescribed in this WAP. The analysis must be performed by LES Aragonite or LES Grassy Mountain using methods equivalent to those required for incoming load samples specified in this WAP. Example: LES-Aragonite receives a waste and then ships this waste to LES-Clive for treatment and/or storage, along with the incoming load samples taken by LES-Aragonite and their analytical results. When the waste arrives at LES-Clive, it may be accepted without taking additional incoming load samples provided the analytical results conform with the approved profile.

Acceptability of the waste is based on the degree of agreement between the waste profile and the load analyses.

Waste is not accepted for storage and/or treatment until the waste has been determined to match the profile or all discrepancies have been adequately resolved.

There are two types of discrepancies that may occur: manifest discrepancies and load discrepancies. To check for manifest discrepancies the number of containers, or the weight if it is a bulk shipment, is reconciled with the manifest. The number of containers must be correct; there

is no tolerance. The weight of bulk shipments must be within ±10%. If either of these conditions are exceeded the manifest is considered discrepant and actions will be taken to reconcile the discrepancy. The manifest discrepancy will be resolved with the generator or their authorized representative and will be noted on the manifest which becomes part of the operating record. If the discrepancy is not resolved within 15 days, the Executive Secretary of the Utah Solid & Hazardous Waste Control Board is notified.

Load discrepancies are determined by comparing the analyses of incoming load samples to the analyses of the profile sample. At a minimum, samples from incoming loads are subjected to the analyses in Table C-2 to verify that the shipment matches the waste profile. Tolerance limits for these parameters have been established in order to aid in the conformance evaluation. Table C-4a contains the degree of agreement with the initial analyses for the parameters in Table C-2.

Should a particular value or values exceed the specified tolerance limits, this is considered a load discrepancy and requires further investigation and/or analyses to resolve the discrepancy. One or more of the following actions occur to resolve the discrepancy:

- The sampling and analytical data are reviewed to verify that they are indeed correct.
- Additional analyses beyond the original profile may be conducted in order to resolve discrepancies or to re-profile the waste.

- The generator or authorized representative is contacted. In cases where the waste is amenable to storage and/or treatment at the facility the discrepancy is resolved with the generator or authorized representative. This may involve creating a new profile for the waste or updating the existing profile. Waste which is not amenable to acceptance (e.g., unacceptable wastes described in Section 1.3.2) is rejected.

The waste may be accepted if the discrepancy is resolved. The resolution of the discrepancy will be clearly indicated in the operating record.

2.2 Lab Packs:

Lab packs are small containers of hazardous waste in over packed drums as described in 40 CFR §264.316. Each container may be prepackaged to meet specific treatment requirements based on compatibilities, Btu content, and size of individual samples. Lab packs shipped to the facility are put together to meet the following criteria:

- DOT approved containers
- All chemicals which are placed into a lab pack are segregated based on their compatibility in accordance with 49 CFR 173.12
- A suitable absorbent, usually spill absorbent, diatomaceous earth or sawdust, is used in sufficient volume to absorb any liquids should individual jars or cans within the lab pack rupture
- For aqueous and/or organic liquids, the maximum amount of liquid in each individually sealed container must not exceed five gallons. Wastes not acceptable in containers up to five gallons will be limited to four liters. Liquid waste streams which may not exceed four liters in the inner containers include organic peroxides,

oxidizers, aromatic and aliphatic ethers, nitric acid >10%, water reactive materials, isocyanates, and ignitables. All inner containers greater than four liters will be tested for ignitability using LES Method 14. If the waste carries the D001 waste code but does not fail the LEL test, it would be acceptable in inner containers of up to five gallons.

- Water reactive material may be received in laboratory packs if other packing requirements are met. No internal container can exceed four (4) liters if water reactive.

If repacking is necessary, the lab packs will be repacked to conform to 40 CFR 268, to meet incineration parameters, and/or to meet the criteria specified above.

2.2.1 Profile Approval Process:

There are two types of lab pack profiles. For the first type, the profile approval process is the same as that described in Section 2.1.1 with the following exception. An inventory sheet for each lab pack is provided instead of a sample of the waste stream and the chemical composition on the profile. All the chemicals are inventoried as the lab packs are put together; subsequently, the contents of each lab pack is known. The inventory is approved as part of the profiling procedure. The incineration parameters (those specified on Table C-3) will be determined from the inventory sheets rather than from analysis of a sample.

The second type of lab pack profile is called a generic lab pack profile. It is designed for generators who will be sending loads of lab packs on an ongoing basis. To start the process for these profiles, the generator must only provide the generator information on the Waste Profile

Sheet. A number is assigned to this profile sheet but no approval to send any waste is given at this time. As loads are prepared for shipment to the facility, the generator provides the inventory sheets for each batch to be shipped. Once again the inventory sheets take the place of the sample and the chemical composition on the profile. They also provide the remaining required information from the Waste Profile Sheet listed in Section 2.1.1 for that batch of lab packs. A profile number for that batch is generated using the number assigned above, a prefix based on the hazard class for the material, and a sequential batch number for each load. The remainder of the profile approval process (e.g., evaluation of the acceptability of the batch and the determination of the incineration parameters) is the same as for the first type of lab pack profiles.

2.2.2 Load Acceptance and Handling of Discrepancies:

There are three types of discrepancies that may occur: manifest discrepancies, load discrepancies, and packing discrepancies.

Acceptance for storage includes checking for a manifest discrepancy, i.e., a piece count. If a discrepancy is discovered, it will be handled as a manifest discrepancy as described in Section 2.1.2.

An inventory list accompanies each lab pack identifying the quantity of each material. For each lab pack received, the accompanying inventory sheet is compared against the approved profile to ensure the waste conforms to the approved profile. If the profile inventory sheet is part of a

multi-part document, it does not have to be compared against the inventory sheet on the drum since they are identical, being carbon copies of each other. The profile inventory sheets must be compared either against the inventory sheets sent with the manifest paperwork or the sheets on the drums. Differences between the approved profile inventory sheets and those inventory sheets accompanying the load are load discrepancies. These differences are additions of new chemical compounds, and/or increases in quantity of chemicals which would change the burn parameters (Table C-3) by more than 10%, from the approved profile. Waste is not accepted for storage and/or treatment until any manifest and/or load discrepancies have been adequately resolved. The actions that will occur to resolve the discrepancies are outlined in Section 2.1.2. The resolution of any discrepancies will be clearly indicated in the operating record.

The third type of discrepancy, packing discrepancies, are determined following acceptance of the waste but prior to incineration. The contents of lab packs are verified by unpacking them and comparing the contents to the load inventory sheets. The frequency of this verification follows a tiered approach. All lab packs will be verified until three consecutive shipments or 500 consecutive drums (whichever comes first) of lab pack material from a generator have been received without any discrepancies. If no discrepancies are found in any of the drums when compared with the inventory sheets, the frequency of verification may drop to one in twenty. If any discrepancies are found in the one in twenty verification, the frequency will increase to one in five until three loads or 500 drums (whichever comes first) have been verified with no discrepancies.

Any unacceptable material will be manifested off-site to an approved transfer, treatment/disposal facility. The generator will be notified of this subsequent action.

2.3 Medical Wastes:

Medical wastes described in this permit are infectious wastes as defined in Section 19-6-102 UCA. These are defined as solid waste that contains or may reasonably be expected to contain pathogens of sufficient virulence and quantity that exposure to the waste by a susceptible host could result in an infectious disease. These wastes are also subject to the requirements of R315-316.

2.3.1 Profile Approval Procedures:

The profile approval process is identical to that for the first type of lab packs (2.2.1). A sample is not required but an inventory sheet describing the material in each container is submitted instead.

2.3.2 Load Acceptance and Handling of Discrepancies:

The load acceptance procedures and handling of discrepancies is the same as for lab packs (2.2.2) with one exception. The check for packing discrepancies is not required. Instead, a signed certification by the generator, indicating the contents of the container are as specified on the load inventory sheet, is required.

2.4 Containerized Waste that Inhibit Analysis:

This section is designed for characterizing wastes received in containers where the material is homogenous and could be sampled but not easily analyzed. Examples include steel plates, empty drums, glass, rocks, certain kinds of DOT 1.4, 1.5, & 1.6 explosives, transformer internals (windings, cores), sealed containers such as capacitors, and other sealed electrical devices that have historically contained PCBs, and small identical containers. This material differs from debris (described in Section 2.5) in that it is homogenous (i.e., the entire drum is all the same single material). It is limited to material consisting of relatively large objects which could not be readily analyzed (e.g., it would not apply to homogenous material such as soils, powders, etc.).

2.4.1 Profile Approval Process:

The profile approval process for containerized waste that inhibit analysis is the same as that described in Section 2.1.1 with the following exception. The generator may supply a picture or a detailed written description of the waste stream (meeting the requirements of ASTM method D4979-89) instead of submitting a sample. If a sample is submitted, the facility may develop the detailed written description or a take a picture of the sample as described above, or may use the sample itself for verification of the physical appearance of the waste stream when the load arrives.

The incineration parameters (those specified on Table C-3) will be determined from the description of the material, generating process, generator knowledge, literature searches, and

good engineering judgement rather than from analysis of a sample. The method for determining these parameters will be clearly documented in the operating record.

2.4.2 Load Acceptance and Handling of Discrepancies:

There are two types of discrepancies that may occur: manifest discrepancies and load discrepancies. To check for manifest discrepancies the number of containers is reconciled with the manifest. The number of containers must be correct: there is no tolerance. If there is a difference, the manifest is considered discrepant and actions will be taken to reconcile the discrepancy. The manifest discrepancy will be resolved with the generator and will be noted on the manifest which becomes part of the operating record. If not resolved within 15 days, the Executive Secretary of the Utah Solid & Hazardous Waste Control Board is notified.

Prior to accepting the load, the contents of containers are inspected for physical appearance at the frequency specified in Section 4.8. The person inspecting the material will have the photo, detailed written description, or the sample of the waste stream from the approved profile so that he/she can easily determine if the waste matches the profile. If there are any discrepancies, they will be resolved according to the procedures in Section 2.1.2 prior to accepting the waste.

2.5 Heterogenous Debris:

In virtually all situations debris has one thing in common: non-hazardous materials are contaminated with organic and inorganic hazardous constituents. Debris differs from the material

described in Section 2.4 in that it contains a wide variety of materials. For example, it may contain a mixture of spill absorbent, Tyvek® suits, rubber booties and gloves, and paper towels. PCB contaminated "white fluff" falls into this category. Items that may not be part of a debris profile include containers containing any liquid. Although it may be possible to get a sample of the debris it may be difficult to get any sort of representative sample.

2.5.1 Profile Approval Process:

The profile approval procedures for debris are identical to those for containerized waste that inhibit analysis (Section 2.4.1).

2.5.2 Load Acceptance and Handling of Discrepancies:

There are two types of discrepancies that may occur: manifest discrepancies and load discrepancies. To check for manifest discrepancies the number of containers, or the weight if it is a bulk shipment, is reconciled with the manifest. The number of containers must be correct: there is no tolerance. The weight of bulk shipments must be within $\pm$ 10%. If either of these conditions are exceeded the manifest is considered discrepant and actions will be taken to reconcile the discrepancy. The manifest discrepancy will be resolved with the generator and will be noted on the manifest which becomes part of the operating record. If not resolved within 15 days, the Executive Secretary of the Utah Solid & Hazardous Waste Control Board is notified.

Prior to accepting the load, the contents of containers or the bulk load is inspected for physical appearance at the frequency specified in sections 4.8 and 4.11. The person inspecting the material will have the photo, detailed written description, or the sample of the waste stream from the approved profile so that he/she can easily determine if the waste matches the profile. If there are any discrepancies, they will be resolved according to the procedures in Section 2.1.2 prior to accepting the waste.

2.6 MSDS Wastes:

This category of wastes is limited to containerized material that is in its original unopened packaging (as a product). The packaging and labeling is still in good condition so that the contents are easily identified. The MSDS for the material is also available.

2.6.1 Profile Approval Process:

The profile approval process for this category of wastes is identical to that for routine wastes (2.1.1) except that the MSDS would be submitted instead of a sample of the waste stream.

The incineration parameters (those specified on Table C-3) will be determined from the MSDS, description of the material, generating process, generator knowledge, literature searches, and good engineering judgement rather than from analysis of a sample. The method for determining these parameters will be clearly documented in the operating record.

2.6.2 Load Acceptance and Handling of Discrepancies:

There are two types of discrepancies that may occur: manifest discrepancies and load discrepancies. To check for manifest discrepancies, the number of containers is reconciled with the manifest. The number of containers must be correct: there is no tolerance. If there is a difference, the manifest is considered discrepant and actions will be taken to reconcile the discrepancy. The manifest discrepancy will be resolved with the generator and will be noted on the manifest which becomes part of the operating record. If not resolved within 15 days, the Executive Secretary of the Utah Solid & Hazardous Waste Control Board is notified.

Prior to accepting the load, each container is inspected to ensure that the labeling is consistent with the MSDS. If there are any discrepancies, they will be resolved according to the procedures in Section 2.1.2 prior to accepting the waste. If containers in the load have been opened, they will be opened and the material will be visually compared to material in one of the unopened containers to ensure the material is the same. This will be documented in the operating record.

2.7 Transfer Operations:

These are wastes that are manifested to another facility but are held temporarily (ten days or less) at the facility during transit. The waste may be part of a load for which some of the material is destined for the Clive facility. When this material is shipped off-site, the original manifest accompanies the waste. This differs from wastes which are accepted for storage only and then

subsequently shipped to another facility. A new manifest is generated with the facility as the generator in this situation.

2.7.1 Profile Approval Process:

No profile approval procedures are necessary.

2.7.2 Load Acceptance and Handling of Discrepancies:

The load is not accepted but rather is held on a temporary basis. There are no requirements for sampling or ensuring the wastes are comparable to a profile. The facility will comply with the transporter requirements in Subpart C of 40 CFR §263 for these wastes. Also, the containers will be inspected to ensure they are in good condition. The containers will be managed in accordance with the procedures in Attachment 9.

2.8 Facility Sample:

In certain situations, the generator may be unable to provide a preshipment sample. In these cases, the waste stream will be identified by the term "Facility Sample" (F.S.) and will not be subject to the preshipment sample requirement. This will only be allowed under one or more of the following conditions:

- the generator's initial shipment is a small quantity (less than 500 gallons)
- the generator requires immediate emergency waste shipment (less than ten days)
- sampling is not feasible at the generator location

This process is also limited to wastes that will be received in containers.

2.8.1 Profile Approval Process:

The profile approval procedures for F.S. waste streams are the same as those described in section 2.1.1 except that the profile sample will be collected by facility personnel upon shipment arrival.

The profile sheet will be reviewed prior to shipment to assess the acceptability of the waste stream for management at Clive. As part of the profile information, the generator must certify that the waste stream is not a prohibited waste as defined in section 1.3.2. The generator must also certify which condition in section 2.8 qualifies the waste stream for the F.S. process. A preliminary approval of the profile, to ensure the material will be accepted at the facility, occurs after obtaining and reviewing the profile sheet and required certifications. This approval will be indicated by providing the notification to the generator in accordance with Condition II.C. and 40 CFR §264.12(b) and will occur prior to shipment of the waste. Field personnel may be authorized by Clive to provide the generator with the required certification. Final approval of the profile by the Laboratory Manager or his/her designee, will be so noted on the profile and will occur after the waste has been sampled at the facility, analyzed, and the appropriate reviews completed. This will occur prior to storage or treatment of the waste. Clive will maintain documentation of all approvals and certifications made by field personnel and/or the generator.

2.8.2 Load Acceptance and Handling of Discrepancies:

Load acceptance and discrepancy resolution procedures are the same as those described in section 2.1.2. The profile sample that will be collected at the facility will be a composite of the load samples collected as described in section 4.8.

2.9 Controlled Substances:

This category of wastes is limited to containerized material that is defined as a controlled substance by the DEA and/or FDA (e.g., cocaine, etc.). The generator or owner of the material will maintain custody of the material from the time it is loaded for shipment until it enters the incinerator. This is necessary because the facility does not have a permit to take custody of controlled substances and the owner of the controlled substance cannot, by permit, relinquish control of the material, including a sample of the material.

2.9.1 Profile Approval Process:

The profile approval process for this category of wastes is identical to that for routine wastes (2.1.1) except that no sample of the waste would be submitted. Instead, the generator of the material will supply one of the following: (1) manufacturer's analysis; (2) a laboratory analysis, or; (3) a certification from a federal, state, or local enforcement agency identifying the material.

If the substance is mixed or diluted in a delivery system, (i.e., IV bags), the generator shall fully describe the system and all hazardous and non-hazardous components. If the controlled substance

is present in a debris-like waste (i.e. spill cleanup, etc.), the generator shall further describe the waste, and approximate concentrations of all components.

The above information, along with literature values and generator knowledge, will be used to generate the incineration parameters in Table C-3.

2.9.2 Load Acceptance and Handling of Discrepancies:

No sample of the incoming waste is required. Since the generator is maintaining custody of the waste, the waste will not be accepted into permitted storage. However, the containers will be labeled so they can be tracked in the waste tracking system. The load will be placed onto a burn plan as soon as possible and directly fed to the incinerator. Custody of the material will be accomplished by the generator providing an escort to accompany the material at all times from the time of shipment until the time the waste is fed to the incinerator. This escort will sign a certification that indicates the material which arrived at the site is the same material described on the profile. A check for manifest discrepancies will still occur as outlined in section 2.1.2.

2.10 Compressed Gasses:

Compressed gasses are homogeneous in nature, are usually well labeled, the generator knows the contents and literature values for the gas characteristics are easily obtained. In this they are similar to MSDS wastes except that the gas bottles are not always full. The contents of compressed gas cylinders and not the cylinders themselves will be incinerated. The depressurized

cylinder is not hazardous waste and may be returned to the generator or disposed of as solid waste. Aerosol cans are not considered to be compressed gasses.

2.10.1 Profile Approval Process:

The profile approval process for this category of wastes is identical to that for routine wastes (2.1.1) except that detailed information about the waste or an MSDS is submitted instead of a sample of the waste stream.

The incineration parameters (those specified on Table C-3) will be determined from the detailed information supplied by the generator, description of the material, generating process, generator knowledge, literature searches, and good engineering judgement rather than from analysis of a sample. The method for determining these parameters will be clearly documented in the operating record.

2.10.2 Load Acceptance and Handling of Discrepancies:

There are two types of discrepancies that may occur: manifest discrepancies and load discrepancies. To check for manifest discrepancies, the number of containers is reconciled with the manifest. The number of containers must be correct: there is no tolerance. If there is a difference, the manifest is considered discrepant and actions will be taken to reconcile the discrepancy. The manifest discrepancy will be resolved with the generator and will be noted on

the manifest which becomes part of the operating record. If not resolved within 15 days, the Executive Secretary of the Utah Solid & Hazardous Waste Control Board is notified.

No sample of the incoming gaseous waste is required if the bottle is clearly labeled and in good condition. If the bottle is not clearly labeled, a qualitative test such as a Dräger tube, will be used to verify the type of gas in the bottle. Prior to accepting the load, each container is inspected to ensure that the labeling is consistent with the detailed description or MSDS. If there are any discrepancies, they will be resolved according to the procedures in Section 2.1.2 prior to accepting the waste. The results of any tests will be documented in the operating record.

2.11 Specially Handled Wastes:

These wastes are fed directly to the Burner Kiln from the Special Handling Bay and will not be blended with other wastes. These may include atomizable liquid, pumpable sludge, or gaseous waste. The reasons for feeding these wastes directly to the incinerator will normally be because the wastes may be incompatible with other wastes or with tank systems. The reasons may also be administrative, e.g., burning a waste to give a quick turn around in disposing of a customer's waste.

2.11.1 Profile Approval Process:

This process is identical to those for routine wastes (section 2.1.1) unless the specially handled waste is a gas in which case it follows the process for gaseous wastes (section 2.10.1) or if it is an unused chemical product the procedures for MSDS wastes (section 2.6.1) would be followed.

2.11.2 Load Acceptance and Handling of Discrepancies:

There are two types of discrepancies that may occur: manifest discrepancies and load discrepancies. To check for manifest discrepancies, the number of containers is reconciled with the manifest. The number of containers must be correct: there is no tolerance. The weight of bulk shipments must be within $\pm$ 10% of the manifest weight. If either of these conditions are exceeded the manifest is considered discrepant and actions will be taken to reconcile the discrepancy. The manifest discrepancy will be resolved with the generator and will be noted on the manifest which becomes part of the operating record. If not resolved within 15 days, the Executive Secretary of the Utah Solid & Hazardous Waste Control Board is notified.

Verification of the type of waste is determined according to the type of waste to be accepted. If gaseous see section 2.11.2, if MSDS see section 2.6.2 and for all others it is the same as for routine wastes, section 2.1.2

2.12 PCB Only Wastes:

These wastes are not hazardous waste under federal RCRA regulations and do not contain any regulated constiutents other than PCB's nor is its treatment or disposal regulated under any EPA or DOE program(s) other than TSCA. They include PCB Liquids, PCB Transformers/Bushings, PCB Debris (PPE, rags, wood, paper, gloves, etc. and empty PCB drums) and PCB Capacitors/Light Ballast.

2.12.1 Profile Approval Process:

The PCB wastes are categorized according to previous categories defined in this plan and the process for each is to be followed except that PCB Liquids, i.e., PCB Dielectric Fluid from Transformers and PCB contaminated water from Transformer vaults/enclosures do not require samples, nor is the following information required on the profile:

Chemical Composition

List of Chemical Constituents and Concentrations

Physical Description

Physical State

Phases/Layering

Odor

Regulatory Information

Regulated or Licensed Radioactive Waste

Regulated Medical Waste

TSCA Regulated PCB Waste

EPA Waste Codes

The profile does require the generator to certify that the waste is PCB only as defined above.

2.12.2 Load Acceptance and Handling of Discrepancies:

The PCB waste will be categorized according to one of the waste categories identified in this plan and load acceptance procedures for handling discrepancies for that category of waste will be followed. In addtion, PCB wastes will be identified by review of the manifest, shipping papers, visual inspection, labels on containers, and the Waste Profile Sheet supplied by the generator. If regulated PCBs are discovered in a waste whose manifest did not identify PCBs as a contaminant, a manifest discrepancy will exist. The generator will be required to explain how the PCBs came to be in the waste. If the explanation indicates that the waste should have been manifested as PCB, the applicable portions of the 40 CFR Part 761 Subpart K which may include filing an "Unmanifested Waste Report" will be followed.

Also during **Incoming Load evaluation**,

1. All PCB Containers, PCB Article Containers, and PCB Articles not in containers will be marked with the appropriate PCB Mark (if not already marked by the generator) to comply with the marking requirements of 40 CFR §761.40.

2. Each PCB container from a shipment will be visually inspected to verify that none are leaking. If a leaking container of PCB waste is discovered during the inspection, it will be re-packaged to prevent further leakage. The spill area will be decontaminated in accordance with 40 CFR Part 761 Subpart G. In addition the transport vehicle bed will be inspected. In the case of flatbeds carrying PCB wastes, water or other free liquid found on the bed will be collected and managed as PCB waste or treated as a PCB spill and cleaned in accordance with 40 CFR Part 761 Subpart G.

Table C-2 Storage and Verification (Fingerprint) Analyses	
Parameter	**Rationale for Selection**
Physical Description	Used to determine the general characteristics of the waste stream. This facilitates subjective comparison of the load sample with the approved profile.
pH	Required of all waste streams, it is used to determine the corrosivity of the waste to ensure proper storage of the waste. It is also used as a parameter to compare the load sample to the approved profile for liquids miscible with water.
Water Reactivity	Used to determine whether the waste has a potential to react with water to generate heat, flammable gases, or other products. It is also used to help identify prohibited wastes. It is also used as a parameter to compare the load sample to the approved profile.
Reactive Sulfides Screen	Used to indicate whether the waste produces hydrogen sulfide upon acidification below pH 2. It is also used as a parameter to compare the load sample to the approved profile.
Ignitability	Indicates the fire-producing potential of the waste and determines whether the waste is RCRA ignitable. It is also used as a parameter to compare the load sample to the approved profile.
Reactive Cyanides Screen	Indicates whether the waste produces hydrogen cyanide upon acidification below a pH of 2. It is also used as a parameter to compare the load sample to the approved profile.
Oxidizer Screen	A general qualitative test used to determine if a waste is an oxidizer. Oxidizers have the potential to react with a wide range of waste streams and therefore often need to be segregated. It is also used as a parameter to compare the load sample to the approved profile.
Radioactivity Screen	It is used to help identify prohibited wastes. It is also used as a parameter to compare the load sample to the approved profile.
Specific Gravity/Bulk Density	Used to determine the quantity that may be stored in a bulk tank to keep from exceeding the design loading. Only required for materials prior to being placed into a bulk tank at Clive. See Table C-4b
Viscosity	Only required for liquids and sludges which must be processed through Unit 538, the Special Handling Bay. Used to determine the pumpability of the waste stream.
Waste Compatibility Qualitative Assessment	As part of the profile approval procedures, the chemical characteristics (pH, reactivity, flammability, etc.) of waste streams are assessed by waste acceptance personnel. This assessment is based on information about the waste, not on any analyses.

Table C-3 Incineration Analysis	
Parameter	Rationale for Selection
Viscosity	Needed to determine the pumpability of the waste stream. Only applies to liquids and sludges.
Specific Gravity	Required to convert values from volume to mass units. Especially important whenever waste streams are blended.
Btu Content	Required for all incinerable waste streams. Determines the need for supplemental fuel during the combustion process to ensure total destruction in compliance with the RCRA and TSCA regulations and not exceed the permitted Btu/hour limitation.
Total Halogens	Measures the amount of equivalent acid expected to be generated per unit amount of waste incinerated. Used to calculate the amount of neutralizing agent needed to meet the incinerator's acid emission requirement, and to maintain compliance with feed rate limitations.
RCRA Metals (As, Ba, Cd, Cr, Pb, Hg, Ni, Ag, Sb, Se, Be, Tl)	Analysis of these metals is required in order to maintain compliance with metals feed rate limitations.
PCBs	Analysis of PCBs is required for PCB wastes or wastes suspected to be PCB in order to maintain compliance with PCB feed rate limitations according to the TSCA Approval Order and to insure waste is stored in approved PCB storage areas.
Specific Organic Analysis	Gas chromatography and gas chromatography/mass spectrometry may be used to identify and quantify specific organic compounds when the generator is unaware of waste stream's composition.

Table C-4a Mandatory Methods and Tolerance Limits		
Parameter Limits	**Method**	**Tolerance**
Physical Description	D4979-89	Must be consistent with profile sample[1] [2]
pH	SW-846 9040 SW-846 9041	± 1.5 pH units
Water Reactivity Screen	D5058-90 Test Method C	No tolerance; both profile and load samples must pass
Reactive Sulfides Screen	D4978-89[3]	Must be consistent with profile sample[4]
Reactive Cyanides Screen	D5049-90[5]	Must be consistent with profile sample[4]
Ignitability (Liquids)	SW-846 1020A	Must be consistent with profile sample If profile sample is reported as being >140°F it must test >140°F or vice versa
Ignitability (Solids)	D4982-89	Must be consistent with profile sample[4]
Ignitability (Sludges)	LES-8b	Must be consistent with profile sample[4]
Radioactivity Screen	LES-6	No tolerance; both profile and load samples must pass
Oxidizer Screen	D4981-89	Must be consistent with profile sample
Viscosity[6]	D2983-87	Must be <150 SSU for Liquids and <10,000 SSU for Sludges

[1] For wastes described in sections 2.4 and 2.5, the sample may be the detailed written description or the photograph as described in those sections.

[2] Differences in color would not be considered a discrepancy for paint and ink wastes for which the generator has indicated the color varies.

[3] Test Method B is used as the primary method for screening for reactive sulfides. If a positive indication is obtained, Test Method A is used to confirm the positive result. Other methods are used for quantitive analysis if necessary.

[4] If different from profile in that the test is negative to positive is considered out of tolerance and will trigger a quantitative analysis (except for ignitability for solids which is a qualitative test). For positive to negative results, the generator will be contacted for a qualitative explanation of the difference. The answer will be documented in the facility operating record.

[5] Test Method D is used as the primary method for screening for reactive cyanides. If a positive indication is obtained, Test Method A is used to confirm the positive result. Other methods are used for quantitive analysis if necessary.

[6] Required only for wastes being fed to the incinerator through Unit 538.

Table C-4b Mandatory Methods and Tolerance Limits Prior to Placing Liquids or Solids into Tanks		
Parameter Limits	**Method**	**Tolerance**
Specific Gravity Tanks TK001-015	D1429-86-MOD	Must be $\leq$ 1.6[7]
Specific Gravity Tanks TK016-022 and TK025-030	D1429-86-MOD	Must be $\leq$ 1.5[7]
Specific Gravity Tank TK023	D1429-86-MOD	Must be $\leq$ 1.2[7]
Solids, Bulk Density, lbs/ft^3 Tanks TK031-033 and TK035-038	D5057-90B	Must be $\leq$ 150[8]

[7] If the specific gravity of an incoming load is greater than this, a weighted average may be calculated to predict the specific gravity of the waste in the tank should the incoming waste be off-loaded into the tank. Liquids/sludges will not be unloaded into the tank if the calculated overall specific gravity of the tank contents is predicted to exceed this limitation.

[8] If the bulk density of the incoming load is greater than this, a weighted average is performed to determine the overall bulk density of the waste already in the bulk solids tank. A second weighted average will then be calculated to predict the bulk density of the waste in the tank should the incoming waste be off-loaded into the tank. Solids will not be unloaded into the tank if the predicted overall bulk density exceeds this limitation.

3.0 Test Methods:

The test methods to measure the parameters discussed throughout this plan are identified in Table C-6. Whenever possible established methods from Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, US EPA, 1986 and its updates are used. However, SW-846 does not have methods for all the parameters specified. In these particular cases, other established methods are used, including American Society for Testing and Materials (ASTM); and EPA 600/4-79-020, Methods for Chemical Analysis of Water and Wastes; Standard Methods for Examination of Water and Wastewater, Latest Edition; EPA 40 CFR, 136, App. A Methods; EPA Contract Laboratory Program, Inorganic SOW and Organic SOW Methods. Where other practical methods are not available, methods have been developed. These methods are described at the end of this section.

The letter following a method number indicates the SW-846 revision of that method. When new method revisions are promulgated by EPA, they will be implemented within six months of promulgation. Thus, listed method numbers will remain constant, but suffixes (A, B, C, etc.) will depend on the latest EPA revision. Table C-6 will be updated as soon as practical to include the latest promulgated method revisions. Other suitable laboratories may have the prior revision designation on their certification as long as the method number reflects that listed in Table C-6, analyses are actually performed and reported according to the latest revision, and the lab has applied for, and provided all necessary information to obtain certification for the new revision. If a lab has not yet implemented the update within the six months and it is necessary to use that

laboratory, justification may be provided for using that lab and a variance requested from the Executive Secretary.

Table C-6 Analytical Parameters and Associated Methods		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
*Acid-Base Partition Cleanup	3650A	(1)
*Acid Digestion of Sediments, Sludges, and Soils	3050A	(1)
*Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Flame Atomic Absorption Spectroscopy or Inductively Coupled Plasma Spectroscopy	3010A-MOD	(1)
*Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Furnace Atomic Absorption Spectroscopy	3020A	(1)
*Alumina Column Cleanup	3610A	(1)
*Aluminum (AA)	7020	(1)
*Aluminum (ICP)	6010A	(1)
*Antimony (ICP)	6010A	(1)
*Antimony (AA)	7040 7041	(1) (1)
*Aromatic Volatile Organics	8020A	(1)
*Aromatic and Halogenated Volatile Organics	8021A	(1)
*Arsenic (ICP)	6010A	(1)
*Arsenic (AA)	7060A 7061A	(1) (1)
*Ash	D482-87	(2)
*Atomic Absorption Spectroscopy	7000A	(1)
*Barium (ICP)	6010A	(1)
*Barium (AA)	7080A 7081	(1) (1)
*Beryllium (ICP)	6010A	(1)
*Beryllium (AA)	7090 7091	(1) (1)
*Bromide	9056	(1)
Bulk Density, Solids	D5057-90B D5057-90C	(2) (2)

Table C-6 Analytical Parameters and Associated Methods		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
*Cadmium (ICP)	6010A	(1)
*Cadmium (AA)	7130 7131A	(1) (1)
*Calcium (ICP)	6010A	(1)
*Calcium (AA)	7140	(1)
*Carbamate pesticides (LCMS) (see note 4)	8123	(1)
Chloride	9252A 9253	(1) (1)
*Chloride (Ion Chromatography)	9056	(1)
*Chlorinated Herbicides	8150B 8151 8150B/8151-MOD	(1) (1) (1)
*Chromium (ICP)	6010A	(1)
*Chromium (AA)	7190 7191	(1) (1)
*Cobalt (ICP)	6010A	(1)
*Cobalt (AA)	7201	(1)
*Copper (ICP)	6010A	(1)
*Copper (AA)	7210 7211	(1) (1)
*Continuous Liquid-Liquid Extraction	3520B	(1)
*Fluoride (Ion Chromatography)	9056	(1)
*Fluoride	340.2 5050	(3) (1)
*Florisil Column Cleanup	3620	(1)
Gas Chromatography	8000A	(1)
*Gas Chromatography/Mass Spectrometry for Volatile Organics	8260A	(1)
*Gas Chromatography/Mass Spectrometry for Semi-volatile Organics	8270B	(1)
*Gel-Permeation Cleanup (GPC)	3640A	(1)

Table C-6 Analytical Parameters and Associated Methods		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
*Halogenated Volatile Organics	8010B	(1)
*Headspace	3810	(1)
Heat of Combustion (BTU)	D240-87-MOD	(2)
*Ion Chromatography	9056	(1)
Ignitability Liquid, actual flashpoint, no suspended solids	1020A 1010	(1) (1)
*Ignitability Liquid, at 140°F, no suspended solids	8b	(4)
Ignitability Liquid, room temperature	D4982-89	(2)
Ignitability Liquid, actual flashpoint, suspended solids (sludge)	1010	(1)
*Ignitability Sludge, at 140°F	8b	(4)
Ignitability Solids, room temperature	D4982-89	(2)
*Iron (AA)	7380 7381	(1) (1)
*Iron (ICP)	6010A	(1)
*Lead (ICP)	6010A	(1)
*Lead (AA)	7420 7421	(1) (1)
*LEL	14	(4)
Liquids, Sludge Compatibility (see note 3)	D5058-90 Test Method A	(2)
*Magnesium (ICP)	6010A	(1)
*Magnesium (AA)	7450	(1)
*Manganese (ICP)	6010A	(1)
*Manganese (AA)	7460 7461	(1) (1)
*Mercury Cold Vapor (AA)	7470A 7471A	(1) (1)
*Microwave Assisted Acid Digestion of Aqueous Samples and Extracts	3015	(1)

Table C-6 Analytical Parameters and Associated Methods		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
*Microwave Assisted Acid Digestion of Sediments, Sludges, Soils and Oils	3051	(1)
*Moisture (organic liquids)	D1533	(2)
*Moisture (Inorganics)	2540B	(5)
*Molybdenum (ICP)	6010A	(1)
*Molybdenum (AA)	7480 7481	(1) (1)
*Nickel (ICP)	6010A	(1)
*Nickel (AA)	7520	(1)
*Total Kjeldahl Nitrogen	D3590-89	(2)
*Nitrate/Nitrite Ion Chromatography	9056	(1)
*Nitrogen, Total	7.025-7.031	(7)
*Nonhalogenated Volatile Organics	8015A	(1)
*Organic Extraction and Sample Preparation	3500A	(1)
*Organochlorine Pesticides	8080A 8081	(1)
*Organophosphorus Pesticides	8140	(1)
*Organophosphorus Compounds by Capillary Column GC	8141A	(1)
Oxidizer Screen	D4981-89	(2)
Paint Filter	9095	(1)
*PCDD	8280 8290	(1) (1)
*PCDF	8280 8290	(1) (1)
PCBs	8080A 8081 8082	(1) (1) (1)
*PCB and Pesticides (GC/MS)	680	(6)
PCB Wipes	5503	(8)

Table C-6 Analytical Parameters and Associated Methods		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
pH Electrometric	9040B	(1)
pH Paper	9041A	(1)
pH Waste	9045C	(1)
pH Solids	9045C	(1)
Physical Description	D4979-89	(2)
*Potassium (ICP)	6010A	(1)
*Potassium (AA)	7610	(1)
*Purge-and-Trap	5030A	(1)
Radioactivity Screen	6	(4)
Reactive Cyanide Screen (Spot Test) Confirmation (see note 2)	D5049-90 Test Method A	(2)
Reactive Cyanide Screen (Drager) Prime (see note 2)	D5049-90 Test Method D	(2)
Reactive Sulfide Screen (Spot Test) Confirmation (see note 2)	D4978-89 Test Method A	(2)
Reactive Sulfide Screen (Drager) Prime (see note 2)	D4978-89 Test Method B	(2)
*Cyanide (Releasable)	Chapter 7, Sec. 7.3.3.2	(1)
*Sulfide (Releasable)	Chapter 7 Sec. 7.3.4.2	(1)
*Selenium (ICP)	6010A	(1)
*Selenium (AA)	7740 7741A	(1) (1)
Separatory Funnel Liq-Liq Extraction	3510B	(1)
*Silica Gel Cleanup	3630B	(1)
*Silver (ICP)	6010A	(1)
*Silver (AA)	7760A 7761	(1) (1)
*Sodium (ICP)	6010A	(1)

Table C-6 Analytical Parameters and Associated Methods		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
*Sodium (AA)	7770	(1)
Solids Compatibility (see note 3)	N/A D5058-90 Test Method A	(9) (2)
Sonication Extraction	3550B	(1)
*Soxhlet Extraction	3540B	(1)
Specific Conductance	120.1	(3)
Specific Gravity	D1429-86-MOD D5057-90-A	(2) (2)
*Sulfides	9030A 9031	(1) (1)
*Sulfate Ion Chromatography	9056	(1)
*Sulfur	D2784-89 D1266-87	(2) (2)
*Sulfur Cleanup	3660A	(1)
Sulfuric Acid Cleanup	3665	(1)
*Thallium (ICP)	6010A	(1)
*Thallium (AA)	7841 7840	(1) (1)
*Tin (ICP)	6010A	(1)
*TCLP	1311	(1)
*Total and Amenable Cyanide (Calorimetric, Manual)	9010A	(1)
*Total and Amenable Cyanide (Calorimetric, Automated UV)	9012	(1)
*Total Organic Carbon	9060	(1)
*Total Halogen	5050 9253	(1) (1)
*Vanadium (ICP)	6010A	(1)
*Vanadium (AA)	7910 7911	(1) (1)

Table C-6 Analytical Parameters and Associated Methods		
PARAMETER	**METHOD NUMBER**	**REFERENCE**
Viscosity	D2983-87	(2)
Waste Compatibility Qualitative Assessment	12	(4)
Waste Dilution	3580A	(1)
Water Reactivity Screen (see note 1)	D5058-90 Test Method C	(2)
*Zinc (ICP)	6010A	(1)
*Zinc (AA)	7950 7951	(1) (1)

* *typically conducted at an off-site laboratory*

TABLE C-6

ANALYTICAL PARAMETERS AND ASSOCIATED METHODS

(1) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846 [3rd Edition (November, 1986), with current updates

(2) American Society for Testing and Materials

(3) Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020

(4) LES Methods

(5) Standard Methods for the Examination of Water and Wastewater, Latest Edition, APHA, WEF

(6) Alford-Steven, A.; Eichelberger, J.W. and Budde W.L. Method 680. Determination of Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry. Physical and Chemical Methods Branch. Environmental Monitoring and Support Laboratory Office of Research and Development. U.S. EPA, Cincinnati, Ohio 45268. November 1985.

(7) Association of Official Analytical Chemists, 14th Edition

(8) National Institute for Occupational Safety and Health

(9) A Method for Determining the Compatibility of Hazardous Wastes, EPA-600/2-80-076, April, 1980

NOTES:

1. A significant temperature change as called out in paragraph 24.8 of ASTM method D5058-90 is defined as $\geq 15^{\circ}C$. The test does not apply to wastes already in contact with excess water, nor is a waste water reactive if the heat generation is due solely to a strong acid/base reaction as verified by pH analysis. Occurrence of the reactions listed in paragraph 24.4 of ASTM method D5058-90 result in failure of the water reactivity test, except that formations of precipitates or emulsions are considered failures only if the ability to mix and pump the resulting liquids is impaired.

2. The test is not required for wastes with pH <6.

3. A temperature rise as called out in paragraph 11.8 of ASTM method D5058-90 is defined as ≥15°C. Occurrence of the reactions listed in paragraph 11.7 of ASTM method D5058-90 result in failure of the compatibility test, except that formations of layers, precipitation, emulsification, or increases in viscosity are considered failures only if the ability to mix and pump the resulting liquids is impaired.

4. This is currently a proposed method for SW-846.

Table C-6

LES Methods

Radioactivity Screen (LES-6)

All incoming waste shipments will be monitored for radioactivity using a count rate meter with a Geiger-Mueller (GM) detector. The detector window shall have at least a 2.54 centimeters diameter opening utilizing window material of approximately 1.7 milligrams per square centimeter. The detector shall be operated in accordance with the manufacturer's recommended procedures. Detectors shall be calibrated at least annually and after repair.

The detector window shall be placed within one (1) inch (but not in contact) of the sample surface of bulk materials until a steady, time weighted count rate is obtained. Three (3) measurements shall be taken of each sample and recorded.

Results of surveys are to be recorded in terms of counts per minute. Any waste found to have a count rate exceeding background by three (3) times or greater for any measurement shall not be accepted without receiving authorization from the Utah Division of Radiation Control. A background reading shall be taken for each sampling day prior to each sample event and the measurement recorded.

Ignitability Screen for Sludges (LES-8b)

The ignitability screen for sludges is determined using a modified version of EPA SW-846 Method 1010. Instead of an actual flash point determination as outlined in the 1010, the sludge is heated in the test cup to 140°F. When the temperature in the cup reaches 140°F, the flame is applied to the sample. A flash/no-flash measurement is determined and recorded as positive or negative.

Waste Compatibility Qualitative Assessment (LES-12)

As part of the pre-approval procedures, the chemical characteristics (pH, reactivity, flammability, etc.) of waste streams are assessed by waste acceptance personnel from the Waste Profile Sheet, to compare compatibility of the waste with shipping and storage containers. This assessment is based on information about the waste, not on any analytical analyses.

LEL (LES-14)

This method is used for the determination of the presence of explosive vapors dissipating from a waste. A positive result (failure) is indicated by a reading of greater than 10% LEL on the instrument.

Containers of waste are opened enough to insert the probe. The instrument pulls any vapors above the waste into the detectors. Sufficient time must be allowed to clear the air from the sample line. The container is sampled immediately after opening. The probe inlet is placed close to, but not touching, the waste in the container. The result (POS/NEG) is documented in the

logbook. Care must be exercised to ensure that drafts are avoided in the area that is being sampled as this can cause a false negative result. The test is not to be run on materials that will poison the detector.

The instrument will be calibrated according to the procedures and at the frequency specified by the manufacturer. It will be operated according to the instructions provided by the manufacturer. Daily sensitivity checks and continuing sensitivity checks every twentieth sample will be conducted. The test will not be run with an instrument that is not functioning correctly.

4.0 Waste Sampling:

This section presents methods to be utilized to obtain a representative sample of wastes. These methods will apply to waste generated off-site as well as facility-generated waste. The specific sampling methods selected are dependent on both the nature of the waste and its location, and will be decided upon immediately before sampling.

4.1 Sampling Locations:

Samples, including incoming load samples, may be taken from a variety of locations throughout the facility and from containers on the LES-Clive rail spur. Waste may be sampled from storage vessels, such as a tank, drum, compressed gas cylinder, roll-off box, rail gondola car, rail tank car, lugger box, tanker or dump-type truck, etc. or from other locations including containment areas, process equipment, pipes and pumps.

4.2 Sampling Methods:

The methods and equipment used for sampling vary with the form and consistency of the waste to be sampled. The appropriate representative sampling techniques, devices, and containers are selected from either the EPA document, "Test Methods for Evaluating Solid Wastes" (SW-846) or "American Society for Testing and Materials" (ASTM) methods.

In order to determine the physical and chemical characteristics of a waste, a representative sample is needed. A representative sample is defined as a sample exhibiting average properties of the whole waste.

Sampling accuracy (the closeness of a sample value to its true value) and sampling precision (the closeness of repeated sample values) are the issues of importance. Thus, from both regulatory and scientific perspectives, the primary objectives of a sampling plan are to collect samples that allow accurate and precise measurements of the chemical properties of the waste. If the chemical measurements are sufficiently accurate and precise, they are considered reliable estimates of the chemical properties of the waste. Statistical techniques for obtaining accurate and precise samples are relatively simple and easy to implement. Sampling accuracy is usually achieved by some form of random sampling. In random sampling, every unit in the population has a theoretically equal chance of being sampled and measured. Consequently, statistics generated by the sample are unbiased (accurate) estimators of true population parameters. In other words, the sample is representative of the population.

4.3 Traceability:

Sample traceability for all internal sampling and analysis is followed. This involves the documentation of procedures so that a set of data can be traced back through the analyst, to the person performing the sampling, and then to the waste itself. All samples receive an unique sample identification number to facilitate this process.

4.4 Sampling Personnel:

Sampling is performed by trained personnel. The laboratory manager or designee trains sampling personnel and observes their techniques periodically to ensure a thorough understanding of sample collection, storage, and transportation practices.

4.5 Sample Labels:

Sample labels are necessary to provide identification of samples. The labels are affixed to the containers prior to or at the time of sampling. The labels are filled out at the time of collection and contain the following information:

- sample identification
- place of collection
- date and time of collection
- person sampling

4.6 Log Book:

All information pertaining to sampling is recorded in a log book. This bound book includes the following information:

- location of sampling point
- volume of sample taken
- date and time of collection
- sample identification number

- person sampling
- comments or observations
- sampling methodology
- sample identification

The number of samples and disposition are in the area Log Book. Sampling situations can vary widely; however, sufficient information is recorded to allow someone to reconstruct the sampling conditions without reliance on the collector's memory.

4.7 Sample Preservation:

All samples are preserved in accordance with the parameter to be measured, as specified by the analytical method for that parameter. For sample preservation, specific procedures are found in the Quality Assurance Plan.

4.8 Sampling of Containers:

The term "container" refers to receptacles designed for transporting materials, e.g., drums and other small receptacles as opposed to stationary tanks. This section addresses sampling of containers that are of a size that could be stored in the container storage building. Sampling of bulk materials in large containers such as rolloffs, tank trucks, etc. is addressed in section 4.11. COLIWASAs, tubes, shovels, drum thieves, and triers are the devices used to sample containers.

A random sampling strategy is employed to sample incoming shipments of containerized waste. For shipments of four containers or less from the same generator and waste stream, every container in the shipment is sampled. For shipments of five to nine containers, two containers will be sampled. For shipments of ten or more containers, 10% of the containers will be sampled. Samples of containers will not be composited.

A unique tracking number is assigned to each container.

Samples are taken from locations displaced both vertically and horizontally throughout the waste. For liquids (or liquids with precipitated solids), the sampling person uses a COLIWASA or equivalent. The sampling device is inserted into the container from the top and is pushed down slowly until the bottom of the container is reached. The device is sealed to retain the contents. The contents of the sampling device are then transferred to a polyethylene or glass bottle, which is labeled with waste identification information. The sampling device may also be stoppered at both ends, wiped dry with a disposable cloth, and then transferred to the lab for analysis.

A trier or thief is used to sample containers that are solid in nature. These containers are generally filled with dirt and sludges. Several areas from the container are sampled and composited into a jar in order to ensure a representative sample. The sampling person removes a sample that uniformly represents the waste composition of the container, i.e., all layers and phases are represented in the sample.

4.9 Sampling of Compressed Gasses:

Samples of compressed gas will be obtained either in a sampling cylinder or in a gas sampling bag such as a Tedlar bag. The cylinder or the gas sampling bag are hand-held sample containers. The cylinder is rigid, and the bag is flexible. For cylinders which require sampling, the number of cylinders sampled will be in accordance with the sampling procedures for containers (section 4.8).

4.10 Sampling of Tanks:

Storage and feed tanks are agitated. The tanks are agitated by either a propeller-type mixer or recirculation. The agitation capabilities of the tanks make it possible to obtain a representative sample via a sampling valve or from the recirculation piping/pump. The tanks are agitated prior to drawing a sample or samples are taken from sample valves located at various levels on the sides of the tank. In addition, other methods for sampling tanks may be used such as a weighted bottle or bomb sampler in order to allow for sampling at various depths.

4.11 Sampling of Bulk Materials:

Where sampling of bulk loads is required, each container of each load will be sampled as described below.

Bulk solids in rolloffs or end dumps are sampled at two locations in the waste container. A trier, thief, auger or shovel is used in order to draw a sample from as deep a cross section as possible at

each location. The samples are composited together so that there is one sample which represents that particular bulk solids shipment.

Bulk solids in rail gondola cars are sampled at four locations in the waste container. A trier, thief, auger or shovel is used in order to draw a sample from as deep a cross section as possible at each location. The samples are composited together so that there is one sample which represents that particular bulk solids shipment. This sample will be used for all rolloffs or end dumps filled from that particular gondola car. No further incoming load sample is required for waste from that gondola car.

Bulk liquids are sampled by using a COLIWASA or similar device which can sample vertical anomalies. Bulk sludges are sampled with a device appropriate for the consistency of the material. That may be a COLIWASA, trier, dip tube, or thief, etc. Each compartment of a tanker truck is sampled. Compartment samples from the same generator and waste stream will not be composited prior to analysis.

Tank trucks without man-ways are sampled through the valve. The valve is flushed prior to the sample actually being drawn.

An exception to the requirement for sampling each load of bulk load shipments will be where multiple bulk loads of a single waste stream are received from a single source (e.g., a major site

clean-up of contaminated material or a large volume generator shipping over a short time period). In such cases, all loads will still be inspected for physical appearance and at least ten percent of such loads will be sampled and analyzed for the incoming load parameters. For each waste stream, prior to implementing this procedure, written authorization from the Executive Secretary will be obtained.

4.12 Frozen Waste:

Loads may arrive at temperatures which prevent a representative sample from being obtained. Under such circumstances, the wastes will be allowed to warm until such time as sampling can be performed. Sampling can occur at any temperature provided a representative sample can be obtained. A sample will then be taken and analyzed following good laboratory practices as outlined in the Quality Assurance Plan.

4.13 Other Samples, i.e., process equipment, containment, sumps, etc.:

The sampling method for waste in and from process equipment, containment and containment surfaces, sumps, etc., will vary with the nature of the waste material but will normally be grab samples or samples of specific locations. For grab samples the sampling device of choice is usually a scoop, shovel or similar device with a bottle in which to collect the sample. Sampling surfaces may involve removing a layer of the surface with a chisel or coring device or wiping the surface with material soaked in a solvent in which the chemical being tested for is at least 5% soluble. A dip tube or COLIWASA may also be used to sample sumps. The 40 CFR 761.123

contains standardized EPA procedures for taking PCB surface wipe samples. The definition constitutes the minimum requirements for an appropriate wipe testing protocol. A standard size template (10 cm X 10 cm) is used to identify the sampling area; the wiping media is an all collection gauze pad which has been saturated with hexane. The wipe is performed quickly once the gauze is exposed to air.

5.0 Reserved

6.0 Reserved

7.0 Pre-Burn Procedures:

Section 2 discussed the procedures for waste to be stored at the facility. Upon acceptance the waste is placed into storage. The wastes may be processed (i.e., decanted, shredded, etc.) and/or commingled with other wastes prior to incineration or off-site shipment. Each movement of a waste within the facility, during which any change in its characteristics may occur, makes the waste subject to additional inspection, sampling, and analysis to determine the appropriate handling and management of the waste. All of the analyses needed for the storage functions are performed during incoming load verification. These are not repeated unless it is known or believed that the waste characteristics may change during storage or processing. This section describes the methods for determining the incineration parameters (Table C-3).

Pre-burn analyses are performed on batches of waste to obtain the values for the parameters listed in Table C-3. This information is needed for control of the incineration system and to assure

compliance with permit conditions. The analyses may be performed on homogeneous blends of wastes, representative composite samples, or on individual batches. Waste profile values may be used for containers of facility-generated waste.

For situations where sampling and analysis cannot be performed due to the nature of the waste or container (e.g., medical waste, containerized waste that inhibit analysis, heterogeneous debris, MSDS wastes, gaseous waste, controlled substances, lab packs, etc.), the value of the pre-burn parameters will be determined by knowledge of the waste as described in Section 2, Waste Characterization.

7.1 Commingled Liquids and Pumpable Sludges:

All liquids and sludges, either containerized or in bulk, are first subject to compatibility testing, according to ASTM method D5058-90 Test Method A, prior to being commingled. If they pass, they may be blended. Incompatible wastes are not commingled. Any successive blending of liquids is also subject to the same compatibility testing. Knowledge of the compatibility of facility-generated wastes may be used in lieu of physical testing to determine compatibility unless these liquids are to be commingled with non-facility generated waste.

Reactive liquid wastes will not be placed into permitted waste storage tanks. Containers of like corrosive and/or reactive wastes may be commingled in larger containers in preparation for being fed through either the Special Handling Bay or in containers being fed to the Burner Kiln through

the Ram Feeder. The materials of construction of the containers and/or tanks being used for commingling must be compatible with the wastes being put in them.

Prior to being fed to the incinerator, the incineration parameters from Table C-3 for the blended liquids and sludges are determined. These values can be determined by one of three methods. Only method 1 is available for tanks to which decanted liquids are being or have been transferred unless a separate analyses of the decanted liquids has first been made.

1. A sample of the blended waste can be obtained and analyzed for the incineration parameters. A new sample will be obtained and analyzed if waste is added to the tank.
2. The values are determined from the profile analyses. If profile analyses are used, the profile with the highest value for each parameter will be used and that value will be assigned to the entire tank, or a weighted average of all the profiles in the tank will be calculated. If profile values are used, and more waste is to be added to the tank before it is emptied, a new tank chemistry will be calculated. To calculate a new weighted average when the tank has not been emptied, the chemistry previously assigned to the material remaining in the tank along with its volume will be used rather than using the profile values from the material that the waste tracking system would show as being in the tank (which uses a first in/first out system).

3. The values are determined using a weighted average of the analyses of samples from individual containers or tanks to be placed into the tank and the previous tank parameters for material left in the tank.

If a sample of the blended waste is obtained and analyzed for the incineration parameters prior to incineration, the wastes in that tank need not have these analyses completed as part of the profile approval process.

7.2 Commingled Solids/Soils:

All solids, either containerized or in bulk, are first subject to compatibility testing as described in EPA-600/2-80-076 or ASTM D5058-90 Test Method A, prior to being commingled. If they pass, they may be placed in the same tank. Incompatible wastes are not commingled. Any successive commingling of solids is also subject to the same compatibility testing.

The samples used for pre-burn analysis will be those obtained during incoming load procedures. Samples which represent a series of loads of waste discharged into a given tank will be combined in proportion to the weights of the loads within the tank to form a composite sample. For example if six loads are discharged into a tank with load weights of 10, 15, 20, 15, 25 and 15 tons respectively, for a total weight of 100 tons, and a 1000 gm composite sample is to be prepared, load 1 would furnish approximately 10% of the sample (100 grams), load 2, approximately 15% (150 grams), load 3, approximately 20% (200 grams) and so on, to accurately represent the

wastes within the tank. The sampling methods are provided in Section 4.0. The sample will be analyzed to determine the values of the parameters listed in Table C-3.

Alternatively, instead of actually mixing the incoming load samples as described above, each may be analyzed separately and the results weight averaged according to the proportion of each load placed into the tank.

If a tank is not empty prior to placing additional waste into the tank, the incineration parameters for the waste in the tank will be weight averaged with the incineration parameters of additional waste being placed into the tank.

PCB Articles with non-burnable casings and which are large enough to be effectively shredded will be shredded prior to incineration. The PCBs in the shredded material are assumed to constitute 100% of the PCBs in the original article(s).

7.3 Containers Managed at the Container Management Buildings:

For containerized wastes that are not commingled or decanted prior to incineration, the incineration parameters (Table C-3) are determined using the information from the waste profile or by running analyses of a composite of the load samples for the parameters in Table C-3. The incineration parameters (Table C-3) for containerized waste that is shredded or manually repacked is the same as for the preshreded or repackaged waste.

In some cases, one or more of the profile parameters, such as a particular metal, may be at high enough levels to require feeding at slow rates to ensure that permit limits are not exceeded. For these waste streams, the facility may elect to analyze for only the parameters of concern in the composite sample described above. When these individual parameters are analyzed, the values obtained will be used in place of the original profile values and the original profile values will be used for those parameters that are not analyzed. The source of the values for the incineration parameters (whether from the profile sample or from the composite of the load samples) will be clearly documented in the operating record.

For containerized wastes that are decanted prior to incineration, the incineration parameters (Table C-3) are determined by running analyses of a composite of the decanted load samples for the parameters in Table C-3.

The samples used for pre-burn analysis may be those obtained during incoming load procedures or new samples taken from the waste. Following the incoming load analysis, the liquid phase of the sample, if any, will be decanted. The remaining sludge/solid will be used for the pre-burn analysis. The incoming load analysis will be performed on each sample, while the pre-burn analysis, which represents the waste after decanting, will be conducted on only the solid portion of the sample. Compositing of the solid phase of the samples will be allowed for each waste stream (i.e., line item on the manifest) only for the purposes of pre-burn analysis. The solid phase of the sample will be analyzed to determine the values of the parameters listed in Table C-3.

The pre-burn analyses of the decanted liquid phase of the containerized waste will be performed on a sample taken from the appropriate tank or bulk container prior to being introduced into the incineration system as described in Section 7.1 for tanks or Section 7.4 for bulk containers.

PCB Articles with non-burnable casings and which are large enough to be effectively shredded will be shredded prior to incineration. The PCBs in the shredded material are assumed to constitute 100% of the PCBs in the original article(s).

Visual Inspection:

All containers at the Container Management Building will be inspected for the presence of free liquids prior to being sent for incineration with the exception of:

- shipping containers from a waste stream without free liquids;
- containers of waste previously processed through the shredder/repackager/decant station;
- lab packs (these are inspected during the lab pack inspection process);
- items not requiring incoming load sampling; and
- PCB articles such as capacitors.

A waste stream would be considered without free liquids if the pre-acceptance description was non-liquid and if the incoming load inspection confirmed this description.

All storage containers (e.g., shipping containers, overpack containers, etc.) that do not meet one of the conditions above and which contain greater than 10 gallons of free liquids will be decanted at the decant station or the liquid absorbed. Liquids which cannot be decanted into a tank will be manually decanted into appropriately sized charges to be ram fed or into a larger container which is acceptable to be fed via the Special Handling Bay, Unit 538. The shipping container containing waste residues, including liquids, remaining after decanting may be processed through the shredder-repackager, manually repacked to be ram fed, ram fed to the Burner Kiln without repackaging, transferred to a bulk solids tank for storage and shredding, or be lidded and stored in the CMB for processing at a later time. Inspection for free liquids of a shipping container (non-lab pack) holding multiple small containers each of 10 gallons or less will be performed on the shipping container only, and not the smaller containers within.

7.4 Specially Handled Waste:

Specially handled waste may include atomizable liquid (Energetic or Non-Energetic), pumpable sludge, or gaseous waste. These wastes will be fed to the incinerator directly from the Special Handling Bay and will not be blended with other wastes.

The samples used to perform pre-burn analysis will be those obtained during incoming load procedures. For gaseous wastes, values of parameters such as BTU content and % chlorine, as furnished by the generator, will be used in lieu of pre-burn analysis.

The sample will be analyzed to determine the values of the parameters listed in Table C-3.

7.5 Medical Waste, Containerized Waste that Inhibits Analysis, Heterogeneous Debris, MSDS Wastes, Controlled Substances, and Lab Packs:

The incineration parameters (those specified on Table C-3) for these waste types will be determined from the description of the material, container inventory sheets, generating process, generator knowledge, literature searches, and/or good engineering judgement rather than from analysis of a sample. The method for determining these parameters will be clearly documented in the operating record.

7.6 PCBs:

For TSCA related wastes the PCB concentration will be determined prior to incineration by sampling and analysis for transformer dielectric fluid, dirt, and sludges. If the material is a capacitor and/or PCB article, or material directly from an article, no sampling will occur. Values will be assigned based on literature review and generator knowledge. A standard PCB concentration based on historical data will be assumed for capacitors, while debris and other spill-related material will be assumed to have the same classification as the material which was spilled. The PCB concentration of "White Fluff" (consisting of fluorescent light ballasts, air conditioner parts, motors, microwave ovens and other small items known to contain PCBs) is to be one-half the weight of PCBs in an equivalent weight of shredded capacitors.

Standard procedure will be to shred all capacitors and similar sealed PCB articles which have non-burnable casings that are large enough to be effectively shred within either Unit 102 or Unit 252 prior to incineration. LES-Clive may remove parts of any PCB item for which shredding it is not practical using either mechanical shredder. This will allow the remainder the item to be shred. The parts which cannot be shred may be reduced in size through other means, if necessary, to prepare them for incineration.

8.0 Reserved:

9.0 Management of Treatment Residues: 40 CFR Part 268

9.1 Introduction:

The purpose of this section of the WAP is to describe the waste analysis provisions available to evaluate compliance with the Land Disposal Restriction (LDR) regulations at LES Clive. The LDR regulations were promulgated under the Hazardous and Solid Waste Amendments (HSWA) of 1984 and are codified in 40 CFR Part 268. The requirements for waste analysis at treatment facilities are also contained in 40 CFR 268.

The technology-based approach used by the LDR establishes standards for the treatment of hazardous waste prior to land disposal. These treatment standards, expressed as either a specified treatment technology or a constituent-based performance standard, are generally based on the performance of the Best Demonstrated Available Technology (BDAT) for a particular hazardous waste. Generally, for organic hazardous waste constituents, incineration is the BDAT.

The waste analysis provisions contained in this section are not meant to exclude or preclude the use of any statutory or regulatory exemptions or extensions provided for in the LDR even if such a provision is not expressly mentioned.

9.2 Relationship to the Remainder of the WAP:

The waste analysis and record keeping requirements of the LDR apply to many of the waste management processes performed at the facility. A description of the provisions specific to the requirements of the LDR is outlined below. This description is presented in terms of the waste flow through the facility.

- During the pre-acceptance procedures, information provided by the generator is reviewed to determine the applicability of the LDR.
- Incoming loads of waste subject to the LDR are accompanied by a manifest and a notification from the generator.
- A record will be maintained of which wastes are and/or could be treated in the incinerator. This record is also the basis for determining which constituent-based treatment standards apply to the treatment residues.
- The treatment residue from the incinerator will be sampled and analyzed (or an extract of the sample will be analyzed) to determine compliance with the applicable concentration-based treatment standards.

- The treatment residue will be shipped off-site, accompanied with the appropriate notifications, certifications, and manifest for additional treatment and/or disposal as necessary.

The terms used in this section will have the same meaning as provided in the WAP.

9.3 Identification of Treatment Residues:

The residues generated as a result of the incineration process will be of the non-wastewater treatability group. Generally, non-wastewater will contain more than one (1) percent total organic carbon or more than one (1) percent total suspended solids. These residues will include materials such as decontaminated soil, ash, slag, spent dry scrubber reagents, etc., and is identified as residue throughout the remainder of this section of the WAP. Although wastewater will be treated in the incinerator, LES Clive does not anticipate that any wastewater from the incinerator will be shipped off-site for additional treatment or disposal.

The treatment residues will normally be discharged from the following units of the incineration system:

- Primary Kiln
- Burner Kiln
- Secondary Combustion Chamber

- Waste Heat Recovery Boiler
- Dry Scrubber
- Baghouse
- Primary Kiln Cyclone

During operation (excepting routine maintenance and SCC residue removal), the residues will be discharged from these units onto conveyors and then to accumulation containers or directly from the unit into accumulation containers. The primary kiln residue is transferred to the Ash Accumulation Building, Unit 254. The burner kiln discharges its solid residues into a wet deslagger which conveys these solids directly into an accumulation container just to the east of the burner kiln. The cyclone discharges to an accumulation container or is commingled with the primary kiln residue downstream of the Primary Kiln Residue sample location. The SCC does not discharge residue while the incinerator is operating. When it is decided that the SCC needs to be cleaned out, the incinerator is shut down, the SCC residue accumulation chamber is opened and the residue removed and placed into containers. The containers will typically be intermodal containers, end-dump trucks or similar transportable containment devices but could be any other type of container suitable for storing the residue.

There are five (5) separate residue handling systems although the primary kiln and cyclone residues may be commingled in conveying systems and/or accumulation containers:

- Primary Kiln System (for residue from the Primary Kiln);

- Primary Kiln Cyclone System (for residue collected in the Primary Kiln Cyclone);
- Burner Kiln System (for residue from the Burner Kiln);
- SCC System (for residue from the Secondary Combustion Chamber);
- APCS System (for residue from the Waste Heat Recovery Boiler, Dry Scrubber, Lime Slaking System, and Baghouse).

These five (5) systems allow independent management of each residue stream. Each residue stream is subject to BDAT treatment standards.

9.4 Waste Code Record Keeping Systems:

A record will be maintained of the quantities of wastes and the LDR codes, including appropriate underlying hazardous constituents, associated with those wastes that are fed to the incinerator. Since treatment standards are designated primarily by EPA waste codes (an exception being the California List), this record will provide the basis for determining what treatment standards apply to the treatment residue.

The following is an explanation of current LDR regulations dealing with tracking waste codes. When the LDR regulations are changed, facility practices will change immediately to meet the updated regulations without first having to change this section of the WAP.

Generators of characteristic wastes bearing the D001, D002 and D012-D043 codes must inform treatment facilities of any "underlying hazardous constituents" associated with the wastes. An

"underlying hazardous constituent" is defined as any constituent listed in § 268.48, Table UTS - Universal Treatment Standards, except vanadium and zinc, which can reasonably be expected to be present at the point of generation of the hazardous waste, at a concentration above the constituent-specific UTS treatment standards. For D001 waste the treatment standard is deactivation followed by treatment of the underlying hazardous constituent to meet UTS constituent-specific treatment standards, or Recovery of Organics (RORGS), or Combustion, which includes incineration, (CMBST). For D002 waste the treatment standard is deactivation followed by treatment of the underlying hazardous constituent to meet UTS constituent-specific treatment standards. For D012 - D017 waste waters the treatment standard includes incineration (INCIN) and combustion. For D012 -D017 non-waste waters and D018 - D043 wastes, UTS constituent-specific treatment standards must be met. As LES Clive is an incineration facility the requirements for D001 wastes and D012 - D017 waste waters are met by treating the waste by incineration. For D002 wastes, D012 -D017 non-waste waters, and D018 - D043 wastes, the generator must notify LES Clive of any underlying hazardous constituents, and these must be tracked to the residue. If a generator fails to notify LES Clive of the existence of underlying constituents, LES Clive will either contact the generator and obtain this information, perform an analysis on the pre-acceptance sample of waste for all UTS constituents, except vanadium and zinc, and advise the generator of the results, or advise the generator that the waste cannot be accepted for management at LES Clive, absent the required information on underlying constituents.

For managing this record of waste codes, wastes will be classified as having been fed to the incinerator from either a cumulative storage vessel (e.g. storage tank) or a discrete storage vessel (e.g. specially handled loads). Different record keeping systems will be used for tracking the two (2) classifications of waste. A description of both is provided in the following sections.

9.4.1 Record Keeping for Waste Codes: Wastes in Cumulative Storage Vessels:

For the purposes of tracking waste codes, there are five cumulative storage units containing individual storage vessels at LES Clive. These are:

- Unit 102 (Shredder/Repack);
- Unit 251 (Non-Energetic Solids);
- Unit 252 (Energetic Solids);
- Liquid and Sludge Waste Storage Tanks composed of Units 103, 531, 532, 533, 534, 601, and 602; and
- Unit 604 (Truck Wash).

Table 9.1 identifies the cumulative storage units and indicates which individual storage vessels are associated with each unit.

Table 9.1 - Storage Vessels in Cumulative Storage Units	
Cumulative Storage Unit	**Storage Vessels in Unit**
Unit 102	Shredder/Repackager
Unit 251	TK-031, TK-032, TK-033
Unit 252	TK-035, TK-036, TK-037, TK-038
Liquid and Sludge Waste Storage	Unit 103: TK-025, TK-026, TK-027, TK-028
	Unit 531: TK-001, TK-002, TK-003
	Unit 532: TK-004, TK-005, TK-006, TK-007, TK-008, TK-009, TK-010, TK-011
	Unit 533: TK-012, TK-013, TK-014, TK-015
	Unit 534: TK-016, TK-017, TK-018
	Unit 601: TK-019, TK-020, TK-021, TK-022
	Unit 602: TK-023
Truck Wash Unit 604	TK-029, TK-030

Typically, the cumulative storage vessel will contain waste from multiple incoming loads from several generators. An example of a cumulative storage vessel would be a waste fuel storage tank. Such a storage tank may only be partially empty when additional wastes bearing waste codes different from those of the wastes remaining in the tank are added to the tank.

Specific record keeping requirements are therefore necessary for all LES Clive cumulative storage vessels to account for the wastes remaining when the vessel is refilled with wastes carrying additional waste codes.

LES Clive will manage waste codes in cumulative storage units by one of two procedures. In Procedure One, when a new batch of compatible waste is added to the storage unit (defined as a single vessel or series of vessels in which a specific waste type is stored), the waste codes associated with this new waste will be added to those waste codes already associated with the storage unit. Thus the storage unit will accumulate waste codes until ultimately all waste codes that the facility can accept for incineration are associated with the storage unit and therefore with each batch of incinerator residue.

On occasion it may be desirable to remove a single LDR waste code or group of codes that are, for example, infrequently managed or that may contain hazardous constituents that are difficult to analyze at the detection limit required to ensure that the LDR treatment standard for the

constituent is met. Procedure Two facilitates the selective removal of an LDR waste code or codes from one or more cumulative storage vessels within a storage unit.

In Procedure Two, a separate record will be kept of the waste codes and individual vessels into which the waste with the code which it is desired not to accumulate is added. The waste code will be deemed to have been removed from the vessel after three (3) cycles of filling and emptying the vessel with waste that does not bear the code(s) to be removed or the tank may be "decontaminated" as described later in this section. A tank is defined as being "filled" when the high-level alarm is triggered in a liquids tank or when a solids tank is within 5% of its total working volume. A tank is defined as "empty" when the contents of the liquids tank are drawn down to the point where the low level alarm is activated. For solids tanks, "empty" is defined as the condition where <5% of the working volume remains or the point where no more solid material can be removed by the normal operation of the clamshell. When flushing is being performed, a notation will be made in the operating record after the tank is filled and after it is emptied. Table 9.2 lists the estimated volume of wastes in tanks, when the wastes are at the high level alarm (full) and low level alarm (empty) levels. While the shredder/repackager is not a storage vessel in the truest sense of the word, some potential for accumulation of waste within the unit does exist. To allow for removal of a waste code from this unit, the following procedure will be followed. For the shredder/repackager (Unit 102), a cycle of filling and emptying is accomplished by processing six (6) 55-gallon containers, or the equivalent volume through the shredder/repackager and discharging the shredded material from the repackager. This process is

repeated three times. The volume of eighteen (18) containers is equivalent to three (3) times the volume of the unit. The "flush" material will be either waste that does not bear the code(s) to be removed or non-waste material.

Table 9.2 - Filled and Empty Liquid, Solid, and Sludge Tank Levels

Unit	Tank or Tank Series	Normal Volume when "Full" (gal)	Normal Volume when "Empty" (gal)	"Flush" Volume (gal)
103	TK-025, TK-026, TK-027, TK-028	2,200	400	1,800
251	TK-031, TK-032, TK-033	400 cu yd	30 cu yd	370 cu yd
252	TK-035, TK-036, TK-037, TK-038	100 cu yd	10 cu yd	90 cu yd
531	TK-001, TK-002, TK-003	17,000	1,000	16,000
532	TK-004, TK-005, TK-006, TK-007, TK-008, TK-009, TK-010, TK-011	17,000	1,000	16,000
533	TK-012, TK-013, TK-014, TK-015	47,000	2,000	45,000
534	TK-016, TK-017, TK-018	11,000	1,000	10,000
601	TK-019, TK-020, TK-021, TK-022	19,000	1,000	18,000
602	TK-023	47,000	2,000	45,000
604	TK-029, TK-030	3,200	600	2,600

The LDR waste codes that are associated with the fourth cycle past are removed from the record for that storage vessel (unless the same codes are associated with the waste being placed in the vessel during one or more of the last three (3) cycles).

Table 9.3 contains a simple example of the record for a cumulative storage vessel in which two specified waste codes P110 and U243 are removed after three cycles of filling and emptying have occurred through the vessel. The information listed in Table 9.3 will be recorded on a form that will be a part of the operating record if LDR waste codes are selectively removed by following this procedure. If wastes from a cumulative storage unit are fed to the incinerator, the residue will contain the waste codes associated with the cumulative storage unit. Tracking of waste codes through the incinerator into the ash residue is discussed in Section 9.4.3.

Table 9.3 - Example of the Record Keeping System for Removing Specified LDR Waste Codes from Cumulative Storage Vessels

Cycle	Tank Status/Activity	LDR Waste code(s) added to the vessel by activity	LDR Waste code(s) desired to track and drop[1]	Waste code(s) assigned and added to codes already assigned to vessel as a result of activity	Waste code(s) dropped as a result of activity
0	**Tank is clean, waste is added to partially fill tank**	**D001, F003, U220, U239**	**None**	**D001, F003, U220, U239**	**None**
0	**Tank has new wastes added to partially filled tank. 2 waste codes from the waste just added are to be tracked and dropped**	**K001, P110, U243, D001**	**P110, U243**	**D001, F003, U220, U239, K001, P110, U243**	None
0	Tank has more waste added, tank is full	P001, F003	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001	None
0	Tank is completely emptied	None	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001	None
1	Tank has new wastes added to partially fill tank	D001, F001, K001	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001, F001	None
1	Tank has more waste added, tank is full	F005, F006	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001, F001, F005, F006	None
1	Tank is completely emptied	None	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001, F001, F005, F006	None
2	Tank has new wastes added to completely fill tank	K037, K045	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001, F001, F005, F006, K037, K045	None
2	Tank is completely emptied	None	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001, F001, F005, F006, K037, K045	None
3	Tank has new wastes added to partially fill tank	D001, F002	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001, F001, F005, F006, K037, K045, F002	None
3	Tank has wastes removed to partially empty tank	None	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001, F001, F005, F006, K037, K045, F002	None
3	Tank has new wastes added to completely fill tank	F002, F003	P110, U243	D001, F003, U220, U239, K001, **P110, U243,** P001, F001, F005, F006, K037, K045, F002	None
3	Tank is completely emptied	None	P110, U243	D001, F003, U220, U239, K001, P001, F001, F005, F006, K037, K045, F002	P110,U243

Table 9.3 - Example of the Record Keeping System for Removing Specified LDR Waste Codes from Cumulative Storage Vessels					
Cycle	**Tank Status/Activity**	**LDR Waste code(s) added to the vessel by activity**	**LDR Waste code(s) desired to track and drop[1]**	**Waste code(s) assigned and added to codes already assigned to vessel as a result of activity**	**Waste code(s) dropped as a result of activity**
4	Tank has new wastes added to partially fill tank	U002	None	D001, F003, U220, U239, K001, P001, F001, F005, F006, K037, K045, F002, U002	None

[1] Only the LDR waste codes identified in column 4 will be dropped after 3 flushing cycles are completed

If a transfer of waste occurs from a cumulative storage unit to another, the waste code(s) transferred will be recorded, unless the receiving unit already contains all the LDR treatment codes associated with the originating unit. If a cumulative storage vessel is isolated for the purpose of accumulating a waste with an LDR treatment code that the facility desires not to mix into other vessels, the following Waste Code Isolation Procedure (WCIP) is used.

Any of the liquid tanks may be used to isolate waste codes after Operations has developed a procedure to fill and feed the contents of the tank so as to not cross contaminate the contents of the tank being isolated with others or the contents of other tanks with the tank to be isolated, depending upon reason for isolating the tank. The procedure will include how the lines to and from the tank will be flushed to remove the waste codes and a valve lineup which will totally isolate that tank and its feed and recycle lines while feeding its contents to the incinerator.

Lines may be flushed with water or fuel oil, thereby removing the code(s) from the interconnecting piping. As an alternative to flushing with fuel oil or water, the code(s) may be removed from the line(s)by using as the flush other waste which do not contain the code to be removed. The lines will be considered free of the code(s) to be dropped after the volume of the flush material described above equals three (3) times the internal volume of the piping in question. The flush material will be considered to contain the code(s) being removed and will be managed as described herein.

After the phase separation, if necessary, and flushing described above has been completed, the waste will be blended as necessary to yield a homogeneous mixture. The waste may then be pumped to the incineration system when decided by Operations.

After feeding to the incineration system is complete, the tanks will be decontaminated (if removal of the code(s) is desired) according to either of the two procedures described in this section of the WAP. Likewise, the feed and recycle lines will be decontaminated as described above. LES Clive will prepare a written report of the WCIP management steps and decontamination procedures which will be included in the operating record.

For Units 251 and 252, the WCIP requires that the waste bearing the code(s) to be removed will be placed in a single solids storage tank and will then be transferred directly from that tank to the incinerator feed system. There are no valves or pumps to be isolated when adding or removing waste from a solids storage tank. Wastes are added to the tank(s) directly from dump trucks or containers, and removed from the tank(s) by clamshell. The WCIP will not be used in Unit 604.

The list of waste codes associated with a storage vessel are those codes associated with the wastes entering the tank in the last three (3) cycles of filling and emptying a vessel, or all of the codes associated with all wastes placed in the tank since it was last decontaminated.

The entire list of waste codes for a particular cumulative storage vessel may be removed if the vessel is decontaminated using the following procedure:

- Waste will be removed from the vessel to the maximum extent possible with the existing equipment designed to remove waste from the vessel. In the case of the solids storage tanks, this would be the overhead clam shell.
- If a sludge or other solid residue is removed from a storage tank for disposal, it will carry all the listed codes since the last decontamination procedure that were stored in the tank up until the date at which the sludge or other residue is removed from the tank.
- The side walls of liquid storage tanks will be flushed with an appropriate solvent (e.g. fuel oil or water). Solids storage tanks will be swept clean using brooms or shovels. The solvent or sweepings will carry all the listed codes that were stored in the tank from the time of its last decontamination up until the date at which the sludge or other residue is removed from the tank. Then the tank will have been decontaminated and the codes cleared.

9.4.2 Record Keeping for Waste Codes: Wastes in Discrete Storage Vessels:

In contrast to the cumulative storage vessel, the waste in a discrete storage vessel will generally be from one source. Examples of discrete storage vessels would be fifty-five gallon drums, repackaged containers or wastes managed through the Special Handling Unit. Discrete storage vessels can be emptied (as defined by 40 CFR 261.7).

A Discrete Storage Vessels may be treated as a "cumulative storage vessel" when wastes from more than one generator are placed into it during a repackaging or 'bulkup' operation or if waste from one of the storage vessels described above is placed into it. When this is done, the waste codes from each tank or container will be accumulated in the discrete storage vessel as if it were a cumulative storage vessel.

A record of the wastes fed to the incinerator from a discrete storage vessel will consist of the quantity of wastes and their assigned codes. The waste code(s) corresponding to the discrete vessel will typically be the code(s) assigned by the generator (including any corrections made by LES Clive during the incoming load procedures). This information will be obtained from the manifest and LDR notifications. If a discrete storage vessel has been used to accumulate wastes, the accumulated codes will be used in the waste code tracking operation.

9.4.3 Record Keeping for Waste Codes: Incinerator Residues:

LES Clive has two alternatives for tracking waste codes to the residue. There is also a sampling alternative for each waste code tracking alternative. (See Section 9.5)

9.4.3.1 Alternative 1 for Keeping a Record of Waste Codes in Incinerator Residues:
(No commingling of Primary Kiln Residue with Cyclone Residue/Removal of Residue Boxes at Midnight)

The incinerator residue generated from the Primary Kiln, Burner Kiln, and APCS ash collection systems will be collected in containers during the operational day, defined as the 24 hour period

from 12:00 midnight to 12:00 midnight. At the end of each operational day, between the hours of 12 midnight and 1:00 AM, an empty ash container will be placed at the primary kiln, burner kiln, and APCS residue system discharge points for collection of the next operational day's residue. Residue from the SCC Ash Chamber will be loaded into containers periodically (i.e., when the ash chamber becomes filled with ash, etc.). Containers used to collect residue from the Primary Kiln Cyclone will be removed when operating personnel determine that the container is sufficiently full.

Waste codes will be assigned to residues collected during an operational day (i.e., Primary Kiln, Burner Kiln, and APCS residues) using the following procedures:

- If a batch of waste is being fed to the incinerator between the hours of 11:00 pm on operational day one (1) and 01:00 am on the following operational day two (2), the residues associated with operational day one (1) and the following operational day two (2) will carry all waste codes associated with the batch. This procedure accounts for the residence time of wastes within the incineration system
- If a batch of waste is fed to the incinerator after 01:00 am on an operational day, and feeding of the batch is completed before 11:00 pm on the same operational day, the waste codes associated with the batch will only be associated with the residue generated during that same operational day
- Where the feeding of a batch is completed between 11:00 pm and midnight on an operational day, note that even though waste codes associated with the batch will be associated with the residue generated during the following operational day, no quantity of

waste (associated with the batch) will be reported as being fed on the second operational day

Table 9.5 Ash Residue Waste Code and Waste Batch Tracking Report is an example of how batches of waste with LDR treatment codes would be identified and reported during an operational day, and how the appropriate codes would be assigned to the residue.

Table 9.5 - Ash Residue Waste Code and Waste Batch Tracking Report

Operational Day # 56 Period 1/28/94 23:00 hrs to 1/30/94 01:00 hrs

Batch No.	Start Date/ Time	End Date/ Time	Quantity Fed (lbs/24 hours)	Source	Waste Codes
#1 [1]	012894/23:00	012894/23:57	0	TK-012 - Energetic Liquid	F002, F003, D001
#2 [2]	012894/23:30	012994/23:56	232,141	TK-014 - Energetic Liquid	F002, U220, D001
#3 [1]	012894/23:10	012994/20:02	32,796	TK-036 - B.K. Bulk Solids	K126, K118
#4 [1]	012894/23:00	012994/12:10	170,303	TK-032 - P.K. Bulk Solids	D023
#5 [1]	012894/23:00	012994/09:17	61,650	TK-023 - Aqueous Waste	K033, K038, K086, F039
#6 [1]	012894/23:30	012994/15:17	45,284	TK-016 - Pumpable Sludge	F024, K009, K016, K107, K051, U098, U220
#7 [3]	012994/01:25	012994/03:39	1,612	Unit 102 - Containerized	P001, P020, P051, P089
#8 [3]	012994/03:46	012994/06:21	1,729	Unit 102 - Containerized	U202
#9 [3]	012994/06:39	012994/11:23	3,524	Unit 102 - Containerized	U098, U099
#10 [4]	012994/09:10	013094/01:00	45,713	TK-019 - Aqueous Waste	K021, K033, K029, K038, K084, U056, U098
#11 [3]	012994/09:55	012994/13:42	813	Unit 538 -Gaseous Waste	None
#12 [3]	012994/11:46	012994/16:41	2,584	Unit 102 - Containerized	K069
#13 [4]	012994/12:05	013094/01:00	119,785	TK-033 P.K. Bulk Solids	D035
#14 [3]	012994/16:59	012994/20:38	1,987	Unit 102 - Containerized	P020
#15 [4]	012994/20:47	012994/23:58	2,143	Unit 102 - Containerized	K039, K001
#16 [4]	013094/00:50	013094/01:00	0	TK-015 - Energetic Liq.	F002, U220, U359, U211
#17 [4]	013094/00:02	013194/01:00	0	TK-038 B.K. Bulk Solids	K034, K039, K061, K066
		Total	**722,064**		

Operational day #56 Residue Waste Codes D001, D023, D035, F002, F003, F024, F039, K001, K009, K016, K021, K029, K033, K034, K038, K039, K051, K061, K066, K069, K084, K086, K107, K118, K126, P001, P020, P051, P089, U056, U098, U099, U202, U211, U220, U359

1 signifies that codes are associated with residues generated on days 55 & 56
2 signifies that codes are associated with residues generated on days 55, 56 & 57
3 signifies that codes are associated with residues generated on day 56 only
4 signifies that codes are associated with residues generated on days 56 & 57

Table 9.5 - Ash Residue Waste Code and Waste Batch Tracking Report

Operational Day # 57 Period 1/29/94 23:00 hrs to 1/31/94 01:00 hrs

Batch #	Start Date/ Time	End Date/ Time	Quantity Fed (lbs/24 hours)	Source	Waste Codes
#2 [1]	012994/23:00	013094/23:56	225,467	TK-012 - Energetic Liquid	F002, U220, D001
#10 [1]	012994/23:00	013094/17:57	51,824	TK-019 - Aqueous Waste	K021, K033, K029, K038, K084, U056, U098
#13 [1]	012994/23:00	013094/14:23	328,575	TK-033 P.K. Bulk Solids	D035
#15 [1]	012994/23:00	012994/23:58	0	Unit 102 - Containerized	K039, K001
#16 [1]	013094/00:50	013094/21:00	243,163	TK-015 - Energetic Liquids	F002, U220, U359, U211
#17 [2]	013094/00:02	013194/00:15	63,416	TK-038 B.K. Bulk Solids	K034, K039, K061, K066
#18 [3]	013094/01:01	013094/02:07	1,212	Unit 102 - Containerized	P001, P020, P051, U165
#19 [3]	013094/01:23	013094/09:31	30,514	Unit 102 - Containerized	P001, K039, K040, K041
#20 [3]	013094/09:45	013094/17:39	26,517	Unit 102 - Containerized	K043, K040, K041
#21 [4]	013094/17:51	013194/01:00	23,164	Unit 102 - Containerized	K039, K040
		Total	**993,852**		

Operational Day # 57 Residue Waste Codes D001, D035, F002, F003, K001, K021, K029, K033, K034, K038, K039, K040, K041, K043, K061, K066, K084, P001, P020, P051, U056, U098, U165, U211, U220, U359

1 signifies that codes are associated with residues generated on days 56 & 57
2 signifies that codes are associated with residues generated on days 56, 57 & 58
3 signifies that codes are associated with residues generated on day 57 only
4 signifies that codes are associated with residues generated on day 57 & 58

Waste codes will be assigned to the SCC residue based upon the waste codes that have been fed to the system since the last time the residue was removed from the SCC Ash Chamber. For example, if residue removal became necessary in March of a given year, the incineration system would be shut down, the SCC Ash Chamber would be entered, and the residue would be removed. Assuming that waste feed began again on April 1 and the SCC Residue Chamber became full five (5) months later (September 1), the incineration system would be shut down to empty the SCC Ash Chamber and the waste codes assigned to the residue removed in early September would correspond to the waste codes fed to the incineration system between April 1 and September 1. Waste codes for the SCC residue would be identified by accumulating the waste codes managed in the incineration system during the operational days that occurred during this period (April 1 through September 1).

Likewise, waste codes will be assigned to the residue collected in the dedicated cyclone residue container based upon the waste codes that have been fed to the Primary Kiln during the time said container has been used to collect residue from the cyclone. For example, if the cyclone residue container became full on March 1 of a given year, the full cyclone residue container would be removed and an empty container would be set in its place. Assuming that this container became full on March 15, the waste codes assigned to the accumulated cyclone residue would correspond to the waste codes fed to the Primary Kiln between March 1 and March 15.

9.4.3.2 **Alternative 2 for Keeping a Record of Waste Codes in Incinerator Residues:** (Accumulate Waste Codes with Selective Waste Code Removal -- Associated with each Combustion Unit/Commingling of Primary Kiln Residue with Cyclone Residue allowed/Removal of Residue Boxes at the Discretion of Operations Personnel)

Waste codes are tracked as waste is fed to each combustion unit and accumulate in the combustion units' residue until the combustion unit is cleaned out or until waste codes are selectively removed. Thus waste codes are assigned to the residue collected in each accumulation container for the Primary Kiln, Primary Kiln Cyclone, Burner Kiln, and APCS based upon the waste codes that have been fed to these or upstream combustion units since the previous clean out, except for those that have been selectively removed, and during the time said container has been used to collect residue from these units. Selective removal of a waste code from residue may be accomplished by identifying the waste code(s) to be removed and two hours after they have no longer been fed, they are considered to no longer be in the residue generated by that combustion Unit, including the APCS residue unless that waste code is being fed to one of the other combustion units. This is a conservative estimate of the time it takes for the waste to transit from the kiln entrance to the residue accumulation container. After the two hour period of time, the next accumulation container put into place will carry all the other codes previously carried, but not those selectively removed until they are fed to the system again. There is no delay between the time a waste code is added to a combustion unit and when it is added to the residue generated by that unit and downstream units.

Waste codes will be assigned to the SCC residue based upon the waste codes that have been fed to the system, i.e. Primary Kiln, Burner Kiln and SCC, since the last time the residue was removed from the SCC Ash Chamber. For example, if residue removal became necessary in March of a given year, the incineration system would be shut down, the SCC Ash Chamber would be entered, and the residue would be removed. Assuming that waste feed began again on April 1 and the SCC Ash Chamber became full five (5) months later (September 1), the incineration system would be shut down to empty the SCC Ash Chamber and the waste codes assigned to the residue removed in early September would correspond to the waste codes fed to the incineration system between April 1 and September 1. Waste codes for the SCC residue would be identified by accumulating the waste codes managed in the incineration system during the operational days that occurred during this period (April 1 through September 1). Selective removal of waste codes from the SCC Ash Chamber is not an option.

Normally the waste codes assigned to the residue generated during an operational day will be those fed from 0000 hours to 2400 hours plus any fed the previous operational day after 2200 hours even if stopped before 2400 hour that same day. If it is desired to remove the waste codes earlier than the end of the next operational day for those waste codes which were no longer fed between 2200 and 2400 hours on the previous operational day, an additional sample will be taken within one hour of stopping the waste feed.

9.5 Sampling of Treatment Residue: (Sampling alternatives 1 and 2 are to be used when using waste tracking alternatives 1 and 2 respectively.)

Sampling will be performed using equipment appropriate for the sampling location and nature of the residue. Sampling considerations are discussed elsewhere in the WAP.

9.5.1 Sampling Alternative 1: (Residue accumulation container sampling, composited for operational day. Residue accumulation containers replaced at midnight)

A representative sample of residue from each residue collection system's filled or partially filled residue containers will be collected and may be composited into one sample with an adequate portion of each sample retained as a reference if needed. Alternatively, each sample may be analyzed separately.

Residue samples from one residue collection system's containers will not be mixed with residue samples from the other residue collection system's containers. If the composite sample is analyzed and fails one or all of the constituent-based treatment standards, each of the reference samples from which the composite was formed will be analyzed to indicate which container(s) failed the test.

The size of the composite samples will be sufficient to perform all analysis required to evaluate compliance with the applicable LDR treatment standards.

If a composite sample is of insufficient size to perform the required analysis, either of the following procedures may be used as a remedy:

- The treatment residue accumulated during the time period for which the undersized sample is representative will be shipped off-site to a suitable treatment, storage and/or disposal facility. This shipment would be accompanied with a notification that the residue does not meet any of the constituent-based treatment standards for the waste codes associated with the residue; and indicating that additional treatment is required (refer also to Section 9.9 for notification requirements).

- Replacement samples will be obtained from the container(s) holding the residue accumulated during the operational day the original sample was taken. An appropriate number of samples will be taken from the container(s) holding the residue. For example, if three (3) containers were filled with residue during the twenty-four (24) hours of operation, a representative sample would be obtained from each of the three (3) containers. Alternatively, each container may be sampled and analyzed separately.

If the residue in a container is suspected to not meet the treatment standards (for example, it is generated during a period of operational instability) it may be isolated and declared to have failed

to meet the treatment standards for all constituents in the waste codes associated with the residue. Alternatively, the residue associated with this isolated container may be sampled and analyzed separately to determine whether it met or failed to meet the treatment standards. Under either of the above circumstances, the composite sample representing the ash produced during an operational day would not include a sample from the isolated container. Any residue which is determined not to meet the appropriate treatment standards for organics may be reincinerated.

9.5.2 <u>Sampling Alternative 2:</u> (Combustion/Residue Collection Units accumulate waste codes with selective waste code removal, Sampling from residue streams at regular intervals throughout Operational Day and Composited for the Operational Day or partial operational days within the operational day)

A sample of residue, from each residue collection system's sampling location upstream of the collection container, will be taken once every four hours throughout the operational day while feeding waste. The samples from each residue collection system will be composited into one sample. Thus for each operational day there will be at least four (4) composited samples, one for each of the residue collection systems except the SCC. If any waste is fed during the operational day to a combustion unit, at least one sample will be taken from its and its downstream residue collection(s) systems.

If waste codes are being tracked to selectively remove them from one or more residue streams, a composite sample will be obtained for each partial operational day that makes up the operational day. In addition, within one hour after the time the wastes codes to be removed are no longer

being fed, an additional sample of the appropriate residue streams will be taken and composited with the previous samples taken. The remainder of the samples for that day will then be composited for the rest of the operational day. As many samples may be taken as necessary to add and remove waste codes throughout the operational day.

As long as the Primary Kiln Residue and Primary Kiln Cyclone Residue have not been co-mingled, if the composite sample for any of the residue streams is analyzed and fails any constituent-based organic treatment standards, each of the residue collection containers with residue from that operational day, may be sampled and those samples analyzed separately to determine which container(s) contain residue which failed the test. If the Primary Kiln Residue and Primary Kiln Cyclone Residue have been co-mingled and either the composite for the Primary Kiln Residue or the Primary Kiln Cyclone Residue fails, all containers with any residue represented by that composite sample will be reincinerated.

The size of the composite samples will be sufficient to perform all analysis required to evaluate compliance with the applicable LDR treatment standards.

If a composite sample is of insufficient size to perform the required analysis, either of the following procedures may be used as a remedy:

- The treatment residue accumulated during the time period for which the undersized sample is representative will be shipped off-site to a suitable treatment,

storage and/or disposal facility. This shipment would be accompanied with a notification that the residue does not meet any of the constituent-based treatment standards for the waste codes associated with the residue; and indicating that additional treatment is required.

- Replacement samples will be obtained from the container(s) holding the any residue accumulated during the operational day or partial operational day for which the original composite sample was to represent. An appropriate number of samples will be taken from the container(s) holding the residue. The samples from each container will be composited to provide one (1) sample per container and analyzed separately.

If the residue in a container is suspected to not meet the treatment standards (for example, it is generated during a period of operational instability) it may be isolated and declared to have failed to meet the treatment standards for all constituents in the waste codes associated with the residue. Alternatively, the residue associated with this isolated container may be sampled and analyzed separately to determine whether it met or failed to meet the treatment standards. Under either of the above circumstances, the composite sample representing the residue produced during an operational day or lesser period of time would not include a sample or sample(s) collected from the residue sample location during the time the isolated container was being filled. Any residue

which is determined not to meet the appropriate treatment standards for organics may be reincinerated.

9.6 Analysis of Treatment Residues:

The analysis of the treatment residues will be performed at the LES Clive laboratory or another suitable laboratory.

The analytical methods used are listed in this Waste Analysis Plan in part; additional methods may be necessary to comply with the LDR. Any additional methods employed will be EPA recommended methods referenced in Test Methods for Evaluating Solid Waste (SW-846), 3rd or latest edition, and in 40 CFR Parts 260 through 270.

Depending on the concentration-based treatment standards applicable to the residue, the laboratory analysis will be performed on the waste in accordance with current regulations.

The treatment residues from the incinerator are expected to meet the constituent-based treatment standards for organic constituents, but are not expected to consistently meet the treatment standards for inorganic constituents (e.g. metals). The residues will be tested for all organic constituents present in the incinerator waste feed which have constituent-based treatment standards.

This analysis will also be performed for inorganic constituents present in the waste feed unless the Laboratory Manager conservatively assumes the residue fails the treatment standards for all inorganic constituents. If the analysis for inorganic constituents is not performed, the Laboratory Manager will also assign all characteristic codes (e.g. D004-D011, with the exception of D009) to the residue corresponding to the metals known to be present in the waste feed and the materials of construction of the incinerator in direct contact with the waste and indicate that LDR treatment standards were not met for these and any listed codes which have any of these metals as a constituent. This alternative is more conservative than laboratory analysis since the residue will be, in some cases, over classified as a characteristic hazardous waste. For mercury (D009 and any listed codes which have mercury as a constituent), once it is determined analytically that the waste is not or could not be "D009, High Merc", it may be treated as described above for the other metal codes.

If incineration is the LDR treatment standard for an incinerated waste, the waste code will be certified as meeting the LDR treatment standard after passage through the incinerator. If the incinerated waste was a characteristic waste, the respective LDR waste code will be dropped after analysis of the ash demonstrates that it no longer exhibits the characteristic. However, for D002 and D012 -D017 non-wastewater wastes and D018-D043 wastes that had assigned to them "underlying constituents", the residue will be tested for those "underlying constituents" to determine if the treatment standard(s) have been met. If any of the "underlying constituents" are inorganic, the residue may either be tested for those constituents, or the residue may

conservatively be assumed not to meet the treatment standards for those constituents except for mercury which will be treated as described above.

9.7 Fate of Treatment Residues:

Treatment residues which meet all treatment standards for the organic and inorganic constituents in the waste feed will be shipped off-site for disposal. Treatment residues which meet all treatment standards for the organic constituents in the waste feed but fail the treatment standards for inorganic constituents will be shipped off-site to an appropriate treatment (and disposal) facility for additional treatment (e.g. stabilization for metals) prior to disposal. All shipments of residue to treatment or disposal facilities will be accompanied by a manifest, notification and appropriate certification .

Residue which does not meet the treatment standards for organic constituents in the waste feed, regardless of whether or not it meets the treatment standards for inorganic constituents, may be either incinerated again or manifested and shipped off-site for additional treatment.

9.8 Notification Requirements:

If analysis of the treatment residues resulting from the incineration of wastes subject to the LDR indicates that the residues meet the organic and inorganic constituent-based treatment standards, the residue will be shipped off-site accompanied with notification and certification statements

required of treatment facilities as specified by the most recent version of 40 CFR 268. The certifications will be signed by the Laboratory Manager or his/her qualified designee.

10.0 Requirements for PCBs and PCB Items: 40 CFR 761

These requirements are found in a separate document as part of the TSCA approval issued by EPA Region VIII.

Insert Appendix 1 - Quality Assurance Plan